LONG ISLAND Sinclair TIMEX GROUP

L.I.S.T.ING

February 1985

Issue Price $1.50

MEETING NOTES JANUARY 6, 1985

The January meeting was called to order at 2:30PM at 9 Dartmoor Drive in Northport. Minutes of the last meeting were printed in December-January newsletter.

The Sec'y Treasurer reported that current paid up membership stood at 53. The projected year end (January 31) balance for the treasury is $200.00. This includes a number of paid up subscriptions through 1986, but will still leave a small balance which will be carried forward. No suggestions for use of the funds were tendered from the floor, during this portion of the meeting.

We have received inquiries about our mailing list and the question of how to handle these was thrown out to the members. It was decided, by voice vote, that we would use a "positive option" plan. That is, members who wish to receive catalogs, etc. and be on our "official" mailing list must so indicate to the membership chairman (currently the Sec'y. Treas.). If you do not specifically request to be on the list sent to outside concerns, you simply won't be on it. (In "computerese," the "default" value is not to be on the list). Bob G. suggested that the meeting host be reimbursed for incidental expenses for the meeting. It was unanimously agreed that the host be provided with $.50 per attendee to help cover his costs for coffee, donuts, etc.

With 53 (56 as of 1/14) members, the maintenance of the mailing list, let alone the data base, is becoming increasingly difficult. Stewart N. volunteered his services to have the data entered into D-Base III (on his P.C.).

It was recommended that we contact Compute-Living, N.Y. (Ellis Booker (212)-505-2600) to tell them of our support for ZX/TS computers. This will be done.

Costs have been increasing (now 24 pages - 12 sheets). It costs at least 4¢/sheet to print and $.37 to mail the newsletters. We will need to print about 100 copies of this issue.

Dues were raised to $15.00/year ($12.00 to charter members who "re-up" prior to the March meeting).

Next meeting will be at H. Wertheuers place in Seaford on February 3rd, Sunday at 2PM. Bring your latest toy. If you have hardware to demo, please bring a power strip. A folding chair, or two, might help, as well.

A Special BASIC - BASIC instructional period will be conducted by Steve Kaye from 1PM to 2PM at Herberts place. If you're a beginner or even an intermediate programmer with a problem, you should attend this class. Steve will concentrate on TS 1000, but, of course, that covers almost 90% of 2068 commands. Steve will probably be the focal point for our TS 1000/ZX81 special interest group, so if you're interested in (helping to start up) this SIG please contact him.

The meeting broke up and various hardware/software packages were demoed:

Paul D. showed his Sear's RGB monitor (see Article) - Bob G. had his RGB monitor and modified Spectrum, Bob has been able to get color from his Spectrum by changing the crystal. He rewired the Spectrum Power supply for 110 volts, and now has a true Spectrum, which can run here in the states. - Nazir P. demoed his microdrive. Several members had brought in their 2068's at our request and were tested with EMU-1 and Nazir's expansion board (with the 90pf capactor on A3-NO, we still don't know why that helps!) of ten machines, all but one (mine!) were made to function with the m-drive and "twister". Buss loading seems to be the problem as we found that about 1/2 of all 2068's don't even need the capacitor. The 2068 is apparently just a little too tightly designed. More on this later. Remember, too that, as of right now, m-drives won't work with the ROM without internal changes. Your best bet for now (or until a buffered bus board comes along) is to wait and see. As an example: this past week, my EMU-1 gave up its life for the cause. See Nazer's article for the latest story.

Taswod II was demoed in 64 column mode on Bob's monitor. It looked good on Chuck Russell's $40 special, B & W monitor too!

SPECIAL NOTES

THE FEBRUARY MEETING WILL SEE THE NOMINATION OF OFFICERS FOR 1985. PLEASE BE PREPARED TO VOTE/VOLUNTEER.

REMEMBER, THIS IS YOUR LAST ISSUE (ACTUALLY AN EXTRA ONE) UNLESS YOU HAD A SPECIAL LATE SUBSCRIPTION, OR ALREADY PAID FOR 1985.

IN THE NEWS:

The January 8th issue of the N.Y. Times contained an article on Orphaned Computers by Peter H. Lewis, which gave us this wonderful little comment.

> **The orphaned Timex, in contrast, seems to have already found greater glory. It was a no-no computer; now it's a state-of-the-art doorstop.**

Steve Kaye wrote an indignant letter to Mr. Lewis and while obviously still "down" on Timex, Mr. Lewis provided a very nice article on our activities and Zebra's in the Tuesday January 22, issue of the Times. No space to publish this issue, but we'll reprint it in full in March.

from the Mile High TSUG newsletter

LIST GROUP
P.O. BOX 458
CENTERPORT, N.Y. 11721-0458

LONG ISLAND SINCLAIR TIMEX GROUP

LISTing Policy:

Annual Dues.....$15.00 Issue Price $1.50 (includes P&P)

One "Sample" copy sent upon receipt of large SASE.

Copies provided on exchange basis with other bona fide user groups.

L.I.S.T.ing is published monthly by LIST (Long Island Sinclair Timex) Group a not-for-profit users group

Your reviews, programs, comments, hardware projects, etc., are eagerly solicited for publication in LISTing.

Please note our new address - P.O. BOX 438, Centerport, N.Y.11721-0438 Mail sent to the old address must be forwarded there and will take longer to reach us.

NOTE: PARTIAL YEAR MEMBERSHIPS AVAILABLE

Normal membership year is Feb. through Jan. at cost of $15.00.(US) By keeping as many members as possible on that basis, we keep our costs and chances of error down.

If you wish to begin subscribing later in the year, please sign up for the end of this year and all of next.

We will accept partial years or different subscription runs, on a limited basis (particularly from members outside the U.S.) But, please be aware that, addition to possible rate increases, your "account" must be handled "by hand" and errors may occur. International (UK Canada) subscribers will receive as many issues as we can afford to mail.

POLICY ON CONTRIBUTED MATERIAL:

We are always looking for interesting articles, programs, reviews etc. to help keep our members informed and entertained. Articles submitted for publication are printed on the following basis:

1. You the writer, maintain the full copyright and can resell, lend or give away your work, as you wish.

2. We are granted the right to publish your material, in the original issue in which it appears. Reprints (e.g., to supply orders for back issues) will include your material as a part of its original issue. We are not allowed to sell your material in any other way, without your express written consent.

We can't (for now) pay you for your material, but you will recieve a copy of the issue in which it is published, even if you're not a member. You may get more than one issue and you will definitely earn the respect and appreciation by your greatful peers.

If you have a program or article about something you've tried, please send it in. Our group interests are so varied that I can almost certainly guarantee that someone else can use your expertise to solve his problem.

February 1985

2-85

CLASSIFIED ADS

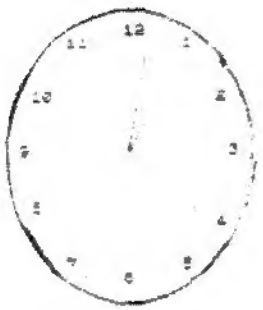
Got something to sell or trade? Members get a free one time insertion of up to 50 words. 10¢/word otherwise (your photo ready copy); 15¢/word we compose.

SPECTRUM ROMs - $19.95 (18.00 for List members) includes P & P. LIST Associates, 10 Idle Day Drive. Centerport, N.Y. 11721.

DK'Tronics Light Pen (for Spectrum - works on 2068 buss) $35.00 (includes P & P) LIST Associates, 10 Idle Day Drive, Centerport, N.Y. 11721.

A NOTE ON: LIST ASSOCIATES
LISTA is a cooperative buying service. It is not an official organ of LIST Group.

LONG ISLAND SINCLAIR TIMEX GROUP (L.I.S.T.) supports ZX81, TS 1000 and TS 2068 computers. Annual dues $15. - includes a monthly newsletter and library program cassettes. Sample newsletter on request. Include a large S.A.S.E. with 37 cents postage. Spectrum ROMS for sale $19.95 includes P&P. L.I.S.T. PO Box 438 Centerport, NY 11721-0438



```
  5 REM clock
 10 LET B=0
 20 LET U=0
 30 LET A=0
 40 LET T=1
 50 CIRCLE 84,90,85
 60 GO SUB 460
 70 FOR N=1 TO 12
 80 PRINT AT 10-9*COS (N/6*PI),
10+9*SIN (N/6*PI);N
 90 NEXT N
100 PLOT 84,90: DRAW 55*SIN B,5
5*COS B
102 LET A=T/30*PI
105 PLOT 84,90: DRAW 60*SIN A,6
0*COS A
110 FOR U=0 TO 60
120 LET C=U/30*PI
130 LET SX=84+62*SIN C
140 LET SY=90+62*COS C
150 OVER 1: PLOT SX,SY
160 BEEP .01,25: PAUSE 1
170 PLOT SX,SY
180 IF U=60 THEN LET U=0: GO TO
200
190 NEXT U
250 LET A=T/30*PI
260 LET MX=60*SIN A
270 LET MY=60*COS A
280 PLOT 84,90
290 OVER 1: DRAW MX,MY
295 IF T/12=INT (T/12) THEN GO
SUB 340
300 LET T=T+1
310 PLOT 84,90
311 LET A=T/30*PI
312 LET MX=60*SIN A
313 LET MY=60*COS A
320 OVER 1: DRAW MX,MY
330 GO TO 110
340 LET B=U/30*PI
350 LET MX=55*SIN B
360 LET MY=55*COS B
370 PLOT 84,90
380 OVER 1: DRAW MX,MY
390 PLOT 84,90
400 LET U=U+1
410 LET B=U/30*PI
420 LET MX=55*SIN B
430 LET MY=55*COS B
440 OVER 1: DRAW MX,MY
450 RETURN
460 LET XC=84: LET YC=90
470 LET r=82
480 LET d=6
490 LET d=d*PI/180
500 FOR p=0 TO 2* PI STEP d
510 LET x=r*COS (p)
520 LET y=r*SIN (p)
530 LET x=x+xc
540 LET y=y+yc
550 PLOT x,y
560 NEXT p
570 RETURN
```

This program is for the 2068. The PAUSE in line 160 is set for demonstration purposes; it may be changed to give accurate time

Stanley W. Livingston

```
  5 REM HEX/DEC
 10 POKE 30000,1
 20 POKE 30003,201
 30 LET x=30001
 40 LET A$=""
 50 IF A$="" THEN INPUT A$
 60 PRINT A$;
 70 IF A$="" THEN GO TO 120
 80 POKE x,16*CODE A$+CODE A$(2
)-476
 90 LET x=x+1
100 LET A$=A$(3 TO )
110 GO TO 50
120 PRINT " ";PEEK (x-2)+256*P
EEK (x-1)
```

```
  THIS PROGRAM IS FOR THE 1000.
 ENTER FIRST 2 DIGITS OF HEX NUM
BER, THEN NEXT 2.  ENTER SPACE T
O GET ANSWER.
```

Excepts from the Spectrum Microdrive handbook

The MOVE statement

So far, you have only been able to move data from a program to a channel or vice versa. The **MOVE** statement, however, enables you to move data from one channel to another. For example, to move data from the keyboard to the screen, enter:

```
10 MOVE #1 TO #2
```

then:

```
RUN
```

Anything you type on the keyboard will now appear on the screen. However, you will discover that when you press **BREAK** this only prints a space on the screen. To escape from this trap, press **ENTER** until the print position reaches the bottom of the screen. Then, when the computer asks scroll? you should press **BREAK**. (You should, by the way, avoid moving data from the keyboard to any other stream since you *may* be unable to **BREAK** out of such a mode.)

Using the **MOVE** statement you can also examine files stored in cartridges. For example, set up the file "Numbers" (see page 23) and then, to examine its contents, enter:

```
10 MOVE "m";1;"Numbers" TO #2
```

(Note that you need not **OPEN** or **CLOSE** the file yourself. **MOVE** does this.)

Similarly, to make a copy of the file "Numbers" enter:

```
10 MOVE "m";1;"Numbers" TO "m";1;"Numbers 2"
```

Here, **MOVE** opens a stream for reading from the existing file ("Numbers") and another for writing to the new file ("Numbers 2"). Next, it reads the data in "Numbers" and writes it out in "Numbers 2". Then it closes both streams.

MOVE will work with stream numbers (such as #4), and with channel specifiers (such as "m";1;"Numbers"). Note, however, that the established streams, #1 to #3, may *not* be specified by the channel specifiers **K**, **S** or **P**.

If you have a second Microdrive, you can use the **MOVE** statement to make back-up copies of data in another cartridge. Enter:

```
10 MOVE "m";1;"Numbers" TO "m";2;"Numbers 2"
```

(Note that **MOVE** only works with data files. If you want a back-up copy of a program, you must **LOAD** the program, and then **SAVE** it.)

The extended BASIC

The ZX Interface 1 extends the BASIC already in the Spectrum. The extensions and additions are summarised below.

Streams

Streams are specified as # n where n is a number in the range 1–15. Streams 1, 2 and 3 are usually used by BASIC. The # character is part of the keyword for the **OPEN #** and **CLOSE #** statements.

Channels

There are seven types of channel in the extended BASIC; the keyboard (k), the screen (s), the ZX Printer (p), the text RS232 interface (t), the binary RS232 interface (b), the network (n) and the Microdrive (m).

Each channel type is specified by its letter which may be upper case or lower case. The network and Microdrive require additional information to specify the channel completely.

A network channel requires a station number, so a network channel is specified as "n";x where x is a station number in the range 0–64.

A Microdrive channel requires a Microdrive number and a file name, so a Microdrive channel is specified as "m";y;"name" where y is the Microdrive number in the range of 1–8 and "name" is a string of between 1 and 10 characters.

PROGRAM FOR AUTOMATIC SAVE,LOAD,VERIFY. FOR BASIC TASWIDE AND TASMAN INTERFACE

Here is a pair of utilities from Richard Cunningham. Lines through 95 or 6000 through 9010 are for automatic SAVE,LOAD and verify of your program (in lines 100 to 5,000) and the Tasman utilities.

The remainer of the listed program is a list/data program. See Richard's letter for more info. Note that you'll need to dimension or establish B$ as the name of your program or data set.

RICHARD J. CUNNINGHAM

```
    1 REM bothts CODE LOAD
  2 REM CLEAR 63223 BEFORE LOADING
  4 BEEP .3,35: PRINT  AT 10,3: INVERSE 1;"WAIT-LOADING ""bothts""  CODE
  5 LOAD "" CODE
 10 CLS : BEEP .5,20: INK 9
 12 RANDOMIZE  USR 64719: REM activate printer interface
 13 REM USE CHAR$ 2: FOR 32 CPL.       CHAR$ 3: FOR 64 CPL
 15 POKE 23658,8
 20 POKE 23609,50
 25 INPUT "ENTER TODAY'S DATE";D$
 90 LET G$=""
 95 GO TO 110
100 REM MENU
110 CLS : BEEP .5,35
120 PRINT  AT 0,15-( LEN F$(1)/2); PAPER 6; BRIGHT 1;F$(1)
125 PRINT  TAB 15-( LEN D$/2); INK 9; PAPER 1; BRIGHT 1;D$
126 PRINT  FLASH 1; PAPER 2;"
130 PRINT  AT 4,0;"TO BEGIN OR ADD TO FILE:"; TAB 30;1
140 PRINT  AT 6,0;"TO SET PRIORITIES:"; TAB 30;2
150 PRINT  AT 8,0;"TO DELETE FROM FILE:"; TAB 30;3
160 PRINT  AT 10,0;"TO CLEAR DATA FOR NEW ENTRY:"; TAB 30;4
170 PRINT  AT 12,0;"TO SEE FILE:"; TAB 30;5
180 PRINT  AT 14,0;"TO SAVE BASIC + DATA TO TAPE:"; TAB 30;6
190 PRINT  AT 16,0;"TO SAVE DATA TO TAPE:"; TAB 30;7
200 PRINT  AT 18,0;"TO LOAD DATA:"; TAB 30;8
210 PRINT  AT 21,6; BRIGHT 1; FLASH 1;"ENTER ONE OF ABOVE"
330 LET V$= INKEY$
340 IF  CODE V$(49 OR  CODE V$)56 THEN  GO TO 330
350 BEEP .1,10
360 CLS
380 GO TO   VAL V$*1000
1000 GO SUB 9000
1005 PRINT  PAPER 6;"ENTER ITEMS ONE BY ONE (60 CHAR.MAX.).IF YOU HAVE NO MORE T
O ENTER, JUST PRESS ENTER."
1010 FOR N=R(1)+1 TO 25
1030 PRINT N;" ";
1040 INPUT ;A$(N)
1045 BEEP .1,30
1050 IF A$(N,1)=" " THEN  GO TO 1100
1060 PRINT A$(N)
1070 NEXT N
1100 LET R(1)=N-1
1110 GO TO 100
1515 PRINT  FLASH 1; PAPER 6;"PRESS Z TO COPY:ENTER TO RETURN:"
2000 GO SUB 9000
2003 PRINT  INK 9; PAPER 6;"PRESS NUMBERS IN ORDER YOU WISH""ITEMS TO BE LISTED
"
2005 GO SUB 2500
2010 FOR I=1  TO R(1)
2015 GO SUB 2500
2020 INPUT A
2025 BEEP .1,30
2030 LET B$(I)=A$(A)
2040 LET A$(A)=""
2050 NEXT I
2060 FOR N=1 TO R(1)
2070 LET A$(N)=B$(N)
2080 LET B$(N)=""
2090 NEXT N
2100 GO SUB 2500
2110 PRINT  PAPER 6; CHR$ 2;"          PRESS ENTER
2120 PAUSE 0
2130 GO TO 100
2500 PRINT  AT 2,0;
2510 FOR N=1 TO R(1)
2520 PRINT N;" ";A$(N)
2530 NEXT N
2540 RETURN
3000 GO SUB 9000
3003 PRINT  INK 9; PAPER 5;"ENTER NUMBER OF ITEM TO DELETE:""ENTER 100 WHEN FIN
ISHED:
3005 GO SUB 2500
3010 INPUT N
3012 IF N=100 THEN  GO TO 100
3015 BEEP .1,30
3020 FOR N=N TO R(1)-1
3030 LET A$(N)=A$(N+1)
3040 NEXT N
3050 LET R(1)=R(1)-1
3060 CLS
3070 GO TO 3003
4000 BEEP .2,25
4010 PRINT  BRIGHT 1; PAPER 2;"ARE YOU SURE YOU WANT TO ERASE??"
4020 PRINT  AT 10,1;"PRESS ""M"" TO RETURN TO MENU"
4030 PRINT  : PRINT  TAB 1;"PRESS ""D"" FOR NEW DATA ENTRY"
4035 PRINT  PAPER 2; BRIGHT 1;"(Pressing ""D"" erases all data)"
4040 IF  INKEY$ ="M" THEN  GO TO 100
4050 IF  INKEY$ ="D" THEN  BEEP .2,35: GO TO 4070
4060 GO TO 4040
4070 CLS : PRINT  AT 10,0; PAPER 3;"ENTER NEW FILE NAME:MAX.10 CHAR."
4075 DIM F$(1,10)
4079 POKE 23658,8
4080 INPUT E$
4081 POKE 23658,0
4085 IF  LEN E$)10 THEN  PRINT  AT 20,1; FLASH 1; BRIGHT 1; PAPER 2;"TOO MANY CH
ARACTERS--RE-ENTER ": BEEP 1,-15: PAUSE 60: GO TO 4070
4088 LET F$(1)=E$: LET E$=""
4090 PRINT  PAPER 2;"NEW FILE NAME: "; PAPER 6;F$(1)
4110 DIM A$(25,60)
4120 LET R(1)=0
4200 PAUSE 120: GO TO 50
5000 GO SUB 9000
5003 PRINT  INK 9; PAPER 5;F$(1); TAB 12;"FOR: ";D$
5005 PRINT G$
5010 GO SUB 2500
5015 PRINT  PAPER 6;"PRESS Z TO COPY:ENTER TO RETURN:"
5020 PRINT G$
5030 PAUSE 0
5040 IF  INKEY$ ="Z" OR  INKEY$ ="z" THEN  GO TO 5060
5050 GO TO 100
5060 LPRINT "     ";F$(1);" FOR: ";D$;" "
5062 LPRINT
5065 FOR N=1 TO R(1)
    ";N;" ";A$(N)
5080 NEXT N
5085 LPRINT : LPRINT : LPRINT : LPRINT
5086 LPRINT
5090 GO TO 100
5105 PRINT  FLASH 1; PAPER 6;"PRESS Z TO COPY:ENTER TO RETURN:"
6000 CLS : PRINT  AT 10,0; PAPER 2;"SAVING BASIC: PROG: ";F$(1)
6010 SAVE F$(1) LINE 1: BEEP .3,35: GO TO 6020
6020 PRINT  PAPER 2;"SAVING ""bothts"" CODE"
6030 SAVE "bothts" CODE 63222,2146: GO TO 6060
6060 CLS : BEEP .5,30: PRINT  PAPER 3;"To verify save: rewind/play tape""
"If verify fails use goto 100"
6070 VERIFY F$(1): GO TO 6080
6080 VERIFY "bothts" CODE : GO TO 6090
6090 PRINT  AT 15,9; FLASH 1; PAPER 2;"O.K. SAVE VERIFIED": PAUSE 120: GO
 TO 100
6500 STOP
7000 CLS : PRINT  AT 10,0; PAPER 2; BRIGHT 1;"SAVING DATA: ";F$(1)
7010 SAVE F$(1) DATA F$(): BEEP .3,35: GO TO 7015
7015 SAVE F$(1) DATA R(): BEEP .3,35: GO TO 7020
7020 SAVE F$(1) DATA A$(): GO TO 7025
7025 CLS : BEEP .5,30: PRINT  PAPER 3;"To verify save: rewind/play tape""
"If verify fails use goto 100"
7030 VERIFY F$(1) DATA F$(): GO TO 7035
7035 VERIFY F$(1) DATA R(): GO TO 7040
7040 VERIFY F$(1) DATA A$(): GO TO 100
7500 STOP
9000 CLS : PRINT  AT 10,0; PAPER 2; BRIGHT 1;"ENTER DATA TITLE OR PRESS E
NTER"
9010 INPUT F$(1)
9020 LOAD "" DATA F$(): LOAD "" DATA R(): LOAD "" DATA A$(): GO TO 100
9000 INPUT "SCREEN PRINT 0 CHAR. PER LINE?   ENTER 32 OR 64: ";C$
9010 IF C$ <> "32" AND C$ <> "64" THEN  BEEP .1,-10: GO TO 9000
```

PRACTICAL MICROCOMPUTER APPLICATIONS

FOR THE PAST TWO YEARS I HAVE BEEN USING MY HOME COMPUTER SYSTEM TO HELP ME COMPLETE MY TEDIOUS CLERICAL CHORES AND HAVE ALSO USED IT FOR THE PREPARATION OF STUDENT EXAMS AND IN SCHOOL FOR SPECIFIC SCIENCE LESSONS WHERE THE STUDENTS COLLECT AND ANALYSE NUMERICAL DATA.

MY COMPUTING EXPERIENCE STARTED WITH A COURSE IN FORTRAN PROGRAMMING AT N.Y.U. SEVERAL YEARS AGO. WHILE I FOUND THAT LANGUAGE VERY CUMBERSOME AND DIFFICULT TO WORK WITH I LEARNED HOW A COMPUTER CAN BE USED TO MANIPULATE DATA. I WAS LATER EXPOSED TO MICROCOMPUTERS AND I WAS AMAZED AT THE SIMPLICITY OF PROGRAMMING AND WORKING WITH THEM. ONE OF MY FRIENDS HAD BUILT A COMPUTER SYSTEM BASED ON THE INEXPENSIVE TIMEX SINCLAIR MACHINE AND I LIKED SOME OF ITS SPECIAL FEATURES. SINCE THAT TIME I'VE BEEN SLOWLY WORKING ON DEVELOPING MY OWN SYSTEM WHILE USING IT FOR MANY PRACTICAL APPLICATIONS CONNECTED WITH TEACHING.

the hardware

a)Computer-Timex Sinclair 1000
b)K'tronics Keyboard
c)64k ram memory
d)Timex S.Sclair 2040 thermal printer
e)Standard b/w t.v. and cassette recorder
f)Westridge 2000 modem (at home)

the software

a)Database-Filedata 2E-21st Century Electronics, Guttenberg N.J.
b)Random Test Writer-Mike Haas-South Shore H.S.
c)Wordsearch-by Roger Valentine
d)Cardio-Comp Heart Education programs-Steven Kaye-Madison H.S.

This was prepared using Wordstar 11.3 and the Timex 2040 printer

PROGRAMS

THESE PROGRAM LISTING ARE BEING SUPPLIED TO PERMIT OTHER TEACHERS TO USE THEIR OWN MICROCOMPUTERS AS I HAVE USED MY MACHINE. IT WOULD BE AN INFRINGEMENT OF THE AUTHOR'S RIGHTS FOR OTHER PEOPLE TO ATTEMPT SELL THE PROGRAMS. IN ADDITION, IF YOU MODIFY ANY OF THE PROGRAMS TO RUN ON OTHER COMPUTERS, PLEASE SEND ME A LISTING OF THE PROGRAMS.

STEVEN KAYE
JAMES MADISON HIGH SCHOOL
3703 BEDFORD AVENUE
BROOKLYN NY 11229

```
9000 REM CUT SLIP PROGRAM
9002 LPRINT "MR/STUDENT: ";C$(I)
9004 LPRINT "ABSENT FROM BIO 1:
PD: ";A$(I, TO 2)
9006 LPRINT "STUDENT PHONE NO: "
;T$(I)
9008 LPRINT "DATE OF ABSENCE ";D
$
9010 LPRINT "TEACHER-MR. S. KAYE
"
9012 LPRINT L$
9014 GOTO MENUE
```

CUT SLIP ROUTINE-INSERT IN FILED ATA 2E PROGRAM

Absence From Recitation Date_____

MR/STUDENT: 3388,IMA SAMPLE
ABSENT FROM GEN. SCI, PD 9
STUDENT PHONE NO 123-4567
DATE OF ABSENCE-DEC. 11,1984
TEACHER-MR. S. KAYE
DATE FILED 12/11/84

Disposition: Check and officer in charge initial.

1. Absence from school _____
2. Change of program _____
3. Sick pass _____
4. Detained in an office _____
5. Late to school _____
6. Marked absent by error ____
7. Unexcused absence _____
8. Discharge or suspense _____
9. _____

FOLLOW UP!— Interviewed by_____on.

```
   1 FOR U=1 TO 50
   2 PRINT AT 8,4;"[redacted]
[redacted]"
   3 NEXT U
   4 CLS
   5 REM RANDOM TEST
   6 REM BY MIKE HAAS-SOUTH SHOR
E H.S.  PLEASE DO NOT DUPLICATE F
OR COMMERCIAL PURPOSES
  10 PRINT "[redacted]
[redacted]"
  15 INPUT A
  17 PRINT AT 0,0;"[redacted]
[redacted]"
  18 INPUT Z
  19 LET B=33+Z
  20 CLS
  22 DIM Q$(A,B)
  40 FOR R=1 TO A
  42 PRINT AT 0,0;"[redacted]
"
  45 INPUT Q$(R)
  50 NEXT R
  52 REM REVIEW BEFORE PRINTING
  54 PRINT AT 0,0;"[redacted]
[redacted]"
  58 FOR R=1 TO A
  67 GOSUB 260
  69 PRINT Q$(R,1 TO N)
  75 PRINT
  77 NEXT R
  78 PRINT "[redacted]
[redacted]"
  79 IF INKEY$="" THEN GOTO 79
  80 IF INKEY$<>" " THEN GOTO 85
  85 CLS
  86 PRINT "[redacted]
[redacted]"
  87 INPUT V
  88 CLS
  89 REM RANDOMIZING ROUTINE
  90 FOR L=1 TO V
 100 DIM X(2+A)
 110 FOR I=1 TO A
 115 LET X(I)=INT (RND+A)+1
 120 IF I=1 THEN NEXT I
 130 FOR J=1 TO I-1
 140 IF X(I)=X(J) THEN GOTO 115
 150 NEXT J
 160 NEXT I
 161 REM LPRINT ROUTINE
 162 LPRINT "SCHOOL NAME GOES HE
RE"
 164 LPRINT
 165 LPRINT "NAME
                    ----------
"
 166 LPRINT "SUBJECT PD
                    ---------"
 167 LPRINT "MR CLASS
                    ---------"
 168 LPRINT
 169 REM LPRINT ROUTINE
 170 FOR I=1 TO A
 175 LET R=X(I)
 180 GOSUB 260
 181 LPRINT I;")";Q$(R,3 TO N)
 182 LPRINT
 185 NEXT I
 186 LPRINT
 187 LPRINT "[redacted]
[redacted]"
 190 NEXT L
 192 PRINT "JOB FINISHED"
 195 STOP
 259 REM KEEPS STR$ TO MIN. LENG
TH
 260 FOR N=LEN Q$(R) TO 1 STEP -
1
 265 IF Q$(R,N)=" " THEN NEXT N
 267 RETURN
9996 SAVE "RANDOM TES[redacted]"
9999 GOTO 0
```

PARENT'S NOTE-INSERT IN FILEDATA-2E

```
9852 LPRINT TAB 18;"NOV. 21, 198
4"
9854 LPRINT
9856 LPRINT "DEAR ";A$(I,4 TO 20
)
9858 LPRINT
9860 LPRINT "     ATTACHED YOU W
ILL FIND     YOUR CHILD'S MOST R
ECENT QUIZ.  I AM NOT SATISFIED
WITH THIS    MARK AND I FEEL YOU
 SHOULD BE   KEPT ADVISED OF YOU
R CHILD'S    PROGRESS IN MY CLAS
S.
9862 LPRINT "     PLEASE SIGN TH
IS TEST AND  HAVE IT RETURNED TO
 ME AT YOUR  EARLIEST CONVENIENC
E.
9864 LPRINT
9866 LPRINT TAB 5;"STUDENT: ";C$
(I,6 TO )
9868 LPRINT TAB 5;"CLASS-BIO. 1"
9870 LPRINT
9872 LPRINT TAB 15;"THANK YOU,"
9874 LPRINT TAB 15;"MR. S. KAYE"
9876 LPRINT
```

```
HELEN BROWN
152  E  8TH ST
BKLYN NY
11234
--------------------------------
3224,BROWN,LIZ          8
```

NOV. 21, 1984

DEAR HELEN BROWN

ATTACHED YOU WILL FIND YOUR CHILD'S MOST RECENT QUIZ. I AM NOT SATISFIED WITH THIS MARK AND I FEEL YOU SHOULD BE KEPT ADVISED OF YOUR CHILD'S PROGRESS IN MY CLASS.

PLEASE SIGN THIS TEST AND HAVE IT RETURNED TO ME AT YOUR EARLIEST CONVENIENCE.

STUDENT: BROWN,LIZ
CLASS-BIO. 1

THANK YOU,
MR. S. KAYE

L I S T GROUP

February 1985

NEWS NOTES : Library tapes are being generated about 2 X/year. Tape #2 (The first for 1985) is due out in February. Response to tape #1 was quite good and the programs on #2 cover over 30 minutes worth of tape.

HEADER READER-TS1000

This program lets you scan the name you have given to your TS1000 programs.It is adapted from "Explorers Guide to the ZX81 and TS1000" by Mike Lord. This vastly underated book is probably THE most valuable addition to your TS1000 library. This unique book contains both harware and software articles, that are not published anywhere else. Explorers guide does not fit the category of a "me too" book. The descriptions of the ZX-81 displays hardware/software is of such detailed nature that it is my guess that Mr. Lord either worked for Sinclair or had some contacts there. Buy it before it goes out of print.

I Have included a minimal loader program to enter the 66 byte code into the rem statement.

First create a rem statement with 66 or more spaces. Then enter enter lines 10 through 200 of listing 1. Enter the code from left to right. When you are done and SUMCHECK is verified to be 7620, delete lines 10 through 200.

Enter lines 20 through 110 of Listing 2.This is the program you will save and use. The program will auto run after a save and prompt you to load your tape, it will then print on the screen the title it finds.

CEM BARUT

LISTING 1

```
    1 REM 123456789012345678901234
5678901234567890123456789012345
6789012345
  10 FOR I=16514 TO 16579
  20 INPUT A
  30 POKE I,A
  40 SCROLL
  50 PRINT I;" ";A
  60 NEXT I
  65 SCROLL
  70 PRINT "DONE"
 100 REM SUMCHECK SHOULD BE 7620
  110 PRINT "PRESS A KEY TO BEGIN
SUMCHEK"
 130 IF INKEY$="" THEN GOTO 130
 140 FAST
 150 LET SUM=0
 160 FOR I=16514 TO 16579
 165 LET Z=PEEK I
 170 LET SUM=SUM+Z
 180 NEXT I
 190 SLOW
 200 PRINT SUM
```

205	35	15	205	138	64
24	251	14	1	6	0
62	127	219	254	31	23
23	56	16	16	245	241
205	138	64	121	215	203
121	40	247	205	43	15
201	213	30	148	6	26
29	219	254	23	203	123
123	56	245	16	245	209
32	4	254	86	48	206
63	203	17	48	201	201

LISTING 2.

```
   1 REM LN 72LN ■RND/ CLS  "■ /
■:= RETURN 3*+5(( PRINT LET LN ■
RND?NOT AC5 ?C RUN LN F?TAN $TR$
 2■.1:= RETURN *AC5 ?75 PRINT (
 PRINT SGN 4■ RETURN ?KEXP ZAC5
(KTAN TAN
  20 RAND USR 16514
  30 PRINT AT 20,0;"PRESS A KE
TO READ TAPE"
  40 IF INKEY$="" THEN GOTO 40
  50 CLS
  60 GOTO 20
 100 SAVE "H.READER"
 110 GOTO 30
```

```
■■■■ HEXCODE  NAME MNEMONIC
==========================
4082■CD230F          CALL 0F23
4085 CD8A40          CALL 408A
4088 18FE            JR 4088
408A 0E01            LD C,01 •
408C 0600            LD B,00
408E 3E7F            LD A,7F
4090 DBFE            IN A,(FE)
4092 1F              RRA
4093 17              RLA
4094 17              RLA
4095 3810            JR C 40A7
4097 10F8            DJNZ 4091
4099 F1              POP AF
409A CD8A40          CALL 408A
409D 79              LD A,C
409E D7              RST 10M
409F CB79            BIT 7,C
40A1 28F7            JR Z 409A
40A3 CD2B0F          CALL 0F2B
40A6 C9              RET
40A7 D5              PUSH DE
40A8 1E94            LD E,94
40AA 061A            LD B,1A
40AC 1D              DEC E
40AD DBFE            IN A,(FE)
40AF 17              RLA
40B0 CB7B            BIT 7,E
40B2 7B              LD A,E
40B3 38F5            JR C 40AA
40B5 10F5            DJNZ 40AC
40B7 D1              POP DE
40B8 2004            JR NZ 40BE
40BA FE56            CP 56
40BC 30CE            JR NC 408C
40BE 3F              CCF
40BF CB11            RL C
40C1 30C9            JR NC 408C
40C3 C9              RET
```

LIBRARY TAPE DOCUMENTATION STILL NEEDED: We still need someone to write up detailed operating instructions for the tapes. Contact Chuck R.

REVIEWING NEEDED

We have some software packages which need user reviews. If you are interested in Investment, money management programs, or a 2068 compiler, and will write a review, please contact Paul D.

Also needing reviews for TS 1000: - a Data base, info retrieval package.
For Spectrum: - Various games

from the Mile High TSUG

RALPH SMITH ALSO INDICATED A NEED FOR A CAD PROGRAM FOR 2068. DOES ONE ALREADY EXIST ? WE HAD A LONG MEETING LAST MONTH DUE TO ALL OF THE H/W AND S/W ADS AS WELL AS THE NEWSLETTERS THAT WE NEEDED TO COVER. THERE IS STILL SUPPORT OUT THERE FOR US OUT THERE. HEINZ WAS ASKED IF HE WOULD TAKE NOTES ON OUR MEETINGS AND HE AGREED. WOULD YOU BELIEVE HE SENT ME 3 TYPED SHEETS BEFORE HE LEFT FOR CHICAGO ? THANK YOU HEINZ. WE WILL TRY TO FINISH UP BY 9:30 PM IN THE FUTURE.

Ralph - Check with Zebra Systems .

LIST GROUP

SPECTRUM COMPUTING - ISSUE 10
NOV/DEC © APS LTD 11111000000
1 GOLDEN SQUARE LONDON W1R 3AB
TEL. 01-437 0626
EDITOR IOLO DAVIDSON

CONTENTS - SIDE ONE

CONTENTS - SIDE TWO

SOFTWARE? REVIEW:

ITEM:	SPECTRUM COMPUTING MAGAZINE
FOR:	SPECTRUM OR TS 2068 WITH ROM OR EMU
PRICE:	£3.99
FROM:	APS LTD, 1 GOLDEN SQ, LONDON W1R3AB

Spectrum Computing is a "magazine" in tape format, similar in some ways to 16/48 magizine. After loading a cute, but somewhat busy little screen, the index (shown above) is listed. The programs are chained; that is, each one loads the next automatically when finished, but can be loaded separately if loaded by name.

The first article is an editorial piece about the new "fastloading" sofware for the Spectrum. The editor states that many new releases include a short loader program which is usually a speeded-up version of the standard Spectrum tape LOAD routine. This cuts loading time significantly (say from 4 min. down to 2), but because of the higher Baud rate and consequent higher frequencies, often leads to LOADing errors or crashes. In his opinion, the "fastload" routines are merely an effort to defeat tape-to-tape copiers and end up making even the originals hard to load. He asks the software houses to cease and desist.

Next comes "Chopper", a pretty much standard "Choplifter" (Defender) type game program. You fly a rescue chopper into oncoming balloons and jet planes, in an attempt to pick up stranded "survivors". The graphics are adequate and response is reasonably good. The singular variation from the standard game is your lack of guns. To give you a frame of reference, I'd say that if Penetrator was worth $10.00 (in the UK) this game would be worth about $4, commercially. As a program published in a magazine though, it is not bad, at all.

A series of software reviews follow "Chopper", these cover arcade or adventure games exclusively and seem to illustrate Spectrum Computings overall style. The reviews are irreverent, perhaps even acerbic at times, and of course, cover only "lightweight" or game software. Compared to 16/48, Spectrum Computing is a bit of a "lightweight" publication, as well. The programs reviewed in the first section include the Inferno, Full Throttle, Battle Zone, PYJAMA and Zombie. Each has two pages of text and offers one actual graphics screen from the reviewed program.

To give you an idea of the reviewers style, I'll try to provide a review of this review of Inferno; written in his own style:

"It's hard to believe this reviewer is serious. He claims "the Inferno" is probably a lot like "the Hobbit", and should be a big hit with adventure fans".

Is he kidding? He admits he's never seen the Hobbit! And he's still trying to make a comparison. Give us strength!

On top of all that, the actual program used for all 5 reviews is written in pissant BASIC. That's that peculiar U.K. version of memory - saving code which makes listings almost incomprehensible to all but the most experienced programmer. Stuff like PRINT LINE (PI*VAL"X") are ridiculous, and probably not necessary as well. A line like the one I just made up probably saves only a couple of bytes of code, anyhow".

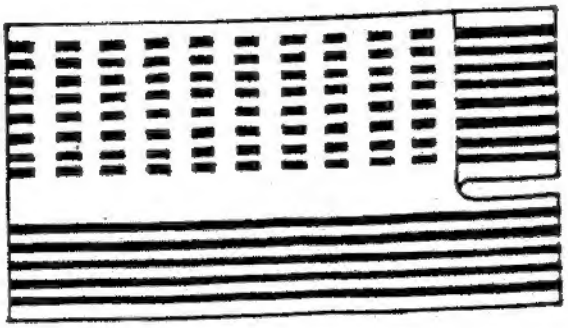
Don't get me wrong. The reviews are not bad, just not good. The last item in the section of the magazine is perhaps an even better indicator of that "lightweight" stigma I applied earlier. PRANG'S TWIDDLER is purported to be an attribute twidding utility. It does twiddle the attributes in some cutesy ways, but I defy any novice programmer to use it. The programs internal documentation, in a few REM statements, is abysmal.

The second section of S.C. is pretty much, "more of the same", though the "Cartoon" is pleasant to watch. To sum up, there is good value for money here, just not as much as there is in "16/48". The best comparison I can make, is to liken 16/48 to "Your Computer" or "ZX Computing" (lately) while Spectrum Computing is more like "Sinclair Programs" or perhaps "Sinclair User".

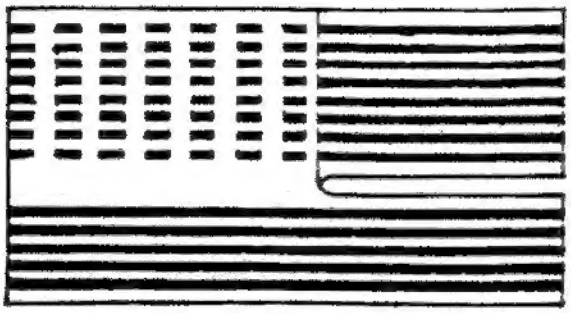
Technical Report:

Yes, this illustration was missing from last month's issue!

Flexible Plastic Connections from Keyboard

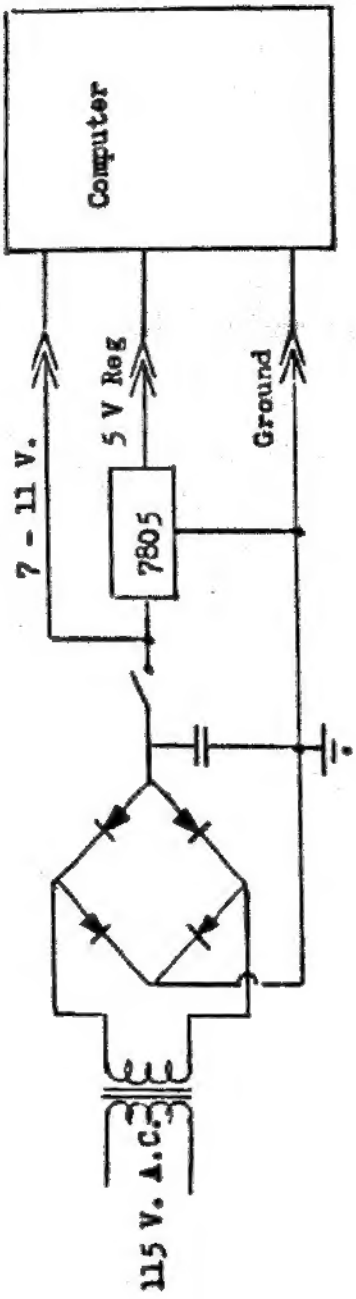


Original



Modified

1IST GROUP



Modified Power Supply Schematic Diagram - with 7805 external to Computer

Here's our third installment from Jass Fesler.

Power Supplies - Problems

1. Once in a great while, you get a noisy power supply. In such cases, the bridge rectifier is first suspect. (A power supply can still partially function with 1 or 2 diodes bad - but it will be noisy!) You must crack open the power supply case and find the faulty diode(s) and replace them with 1N4002 diodes. I've never seen a capacitor fail, but it could and the replacement is a 1000 mfd/16V capacitor.

2. I recommend cracking open the power supply whether there is a problem or not. I then put a miniature SPST switch in series with the output so that I can kill power at the power supply, rather than pulling the plug at the computer.

3. To avoid drop-outs due to looseness of the power supply plug, I remove the power jack completely. (Desolder it and remove.) I then hard-wire the power wires in place, tack them securely with some silicone rubber and the power drop-out problem is completely solved. For an even neater job, one should consider putting a small male and female connector near the power supply to disconnect the system. Watch that you don't reverse polarity!

4. Where I live, heat is not a problem. However, based upon the vast amount of letters and complaints seen in Sync and Syntax, heat is a problem for many and the logical solution - the only one I've not seen presented - is to get the primary heat generator outside of the computer case, like so:

   a. The primary heat generator is the 7805 3-terminal 5 Volt regulator. The higher the input voltage applied to this device, the more energy which must be dissipated in heat by this device to reduce the output voltage to +5 volts.

   b. The input voltage (From the external power supply) varies from a high of 11+ volts down to 7 volts. The variation comes about primarily due to the amount of add-ons which are connected to the computer. Each device added pulls more current - which causes voltage to drop. (Should you add too many external items, say with a 750 ma. power supply, the response would be too high a current drain, voltage would drop too low, and the computer would just quit functioning.)

   c. De-solder the 7805 regulator and remove it - also the aluminum heat sink. Now, combining with (3., above) connect a 3-wire input to the computer. Three wires are now needed because not only do we need a +5 volt and ground (return) line, but we need the un-regulated line which provides between 7 and 11 volts - for use by the external 16K RAM. (See figure A) Page 4

   d. Mount the 7805 regulator - with a good heat sink - to the external power supply. Use silicone rubber to insulate the heat-sinked 7805. Now rig 3 lines via a 3 wire plug and jack to provide variable D.C. (7 - 11 volts), regulated +5 VDC and ground. Don't forget to put a SPST miniature switch on the external power supply.

SIMPLE T/S 2068 OUT PORT
(Part 2)

As stated in part 1, the outputs of the Port or latch can drive LEDs directly however. It would be preferred to isolate the output circuitry using optoisolaters. Refer to diagrams.

1- An optotransistor with a Darlington pair and an LED can be used to drive a relay directly.

2- An optothyristor can be used for controlling half wave AC line circuits such as, lights, pumps, valves and motors .

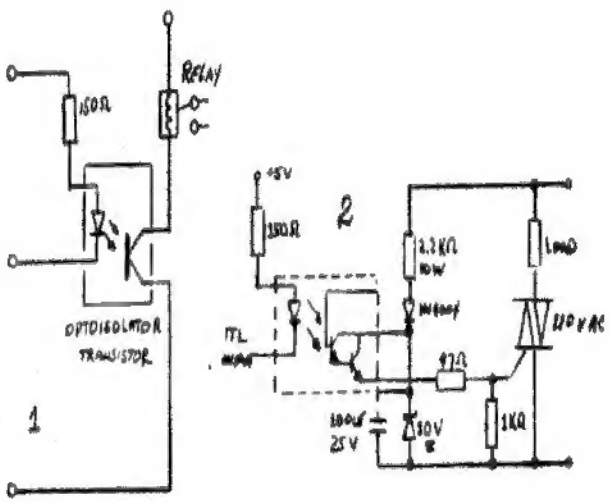
3- Optodiac/Optotriac devices can be used to drive simple AC line circuits directly or with an additional Triac for heavier AC line applications.s

The Port circuit can be connected to eight (8) opto devices since their is adequate power from the 5 volt computer power supply. External circuits driven from opto devices should contain their own power supply to prevent overloading the computer.

An alternative device which can be used safely as an interface between the computer, Out Port and external low-voltage DC circuitry is the V-FET or VMOS transistor. This is a high current Field Effect transistor (FET) that acts very well as a high current switch to operate DC motors such as in a train set control application or prehaps in Robotics and motors or servos. Thyristors and Triacs are AC devices which do not switch off under DC conditions, whereas the V-FET will switch on and off like a relay with the load being connected in the Drain or Source circuits in series with the transistor. A V-FET which can switch up to 2 amps is the VN 46AF. This V-FET can use DC voltages up to 40V and is rated at 15 Watts.

The Out Port can be constructed using the PC board available from MAPLIN ELECTRONICS LTD; ENGLAND or from a section of multi-purpose perf board (ZEBRA) using point-to-point wiring or wire wrap techniques.

The relay board or opto drive board should be separate from the Port board since they will probably drive some sort of 110V AC devices. Double check all 110V connections for adequate insulation and/or shorts between the output circuitry.



Diagrams: 1-Optoisolator (Transistor), 2-Opto-Darlington pair

TESTING

Without the Port connected to the computer and with out any power present, check all connections with an ohmeter or continuity tester for shorts or open connections. If everything is OK, connect the Out Port to the computer and apply power. The computer should display the normal copywrite message at the bottom of your monitor screen - if not, shut off the computer immediately and recheck all wiring. If all is well, a voltmeter check from each latch output should read a logical 0; almost 0V.

Type in: OUT 31,255, then ENTER. All outputs should go high (logic 1), about 5 volts DC. Any relays connected to outputs will energize and opto devices will drive their respective loads.

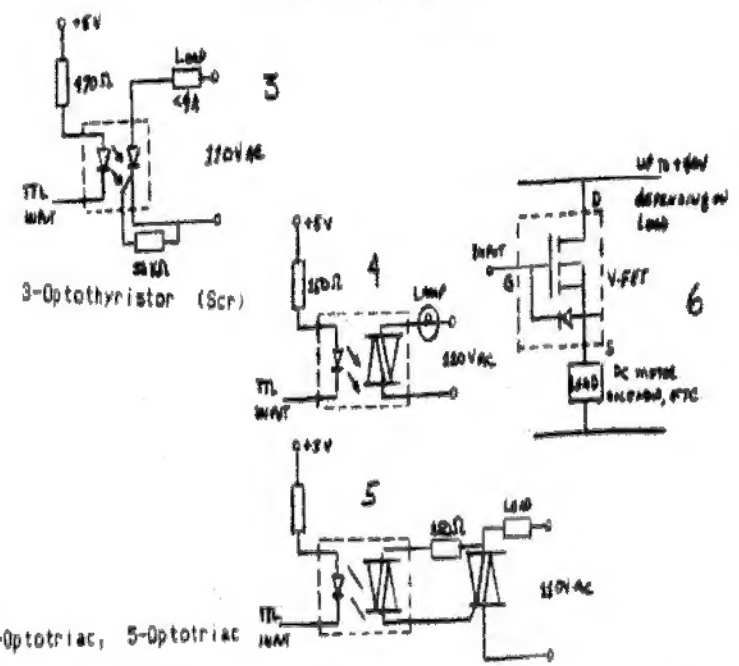
To call each port (latch), use the following:

```
OUT 31,1.........Latch 1
Out 31,2.........Latch 2
Out 31,4.........Latch 3
Out 31,8.........Latch 4
Out 31,16........Latch 5
OUT 31,32........Latch 6
OUT 31,64........Latch 7
OUT 31,128.......Latch 8
```

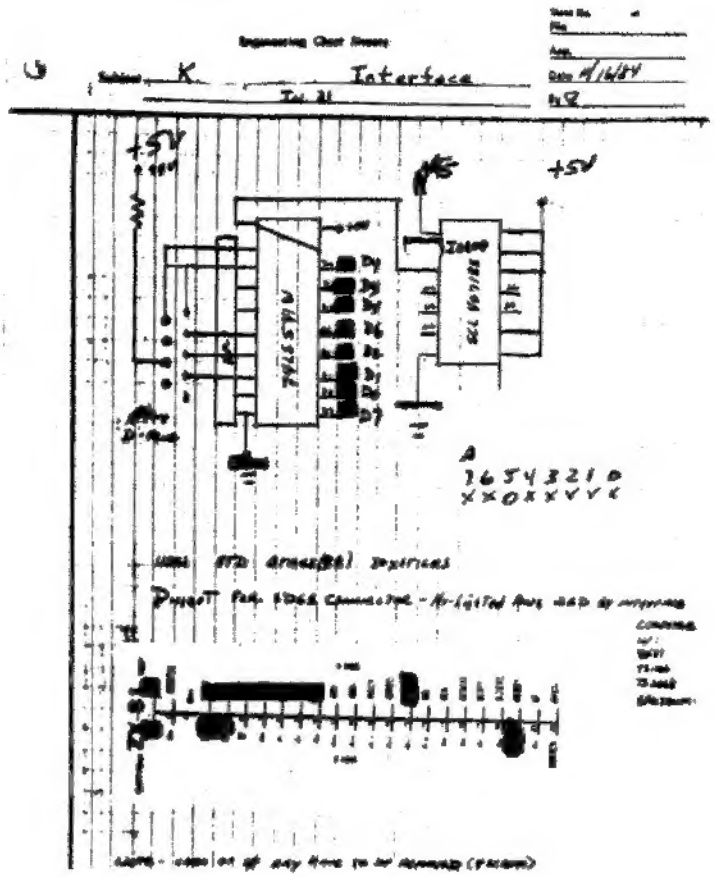
If a combination of two or more Ports are required, use BINARY for the required number to activate multiple devices:

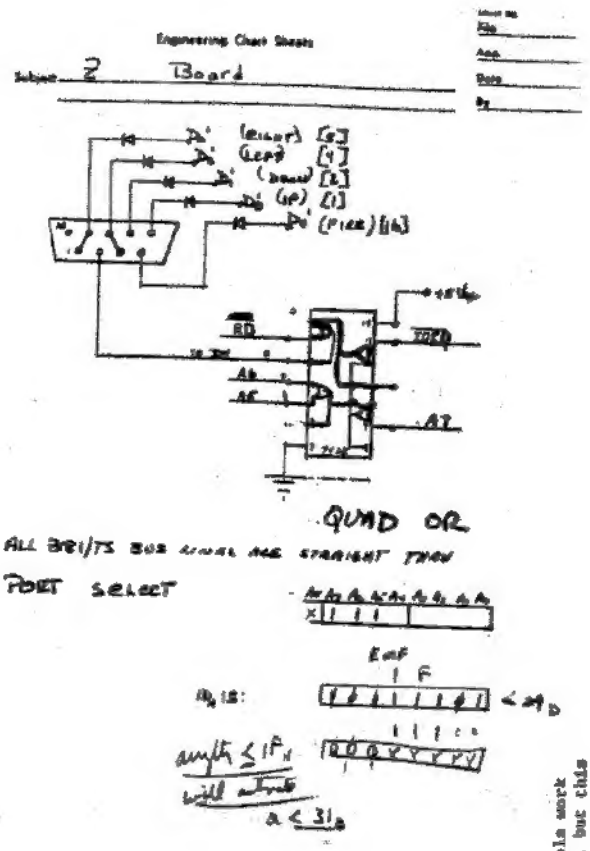
```
OUT 31,3.........Latch 1 & 2
OUT 31,255.......Latch 1 thru 8
OUT 31,7.........Latch 1, 2, & 4
and so on.....................
```

.....Bob Gilder

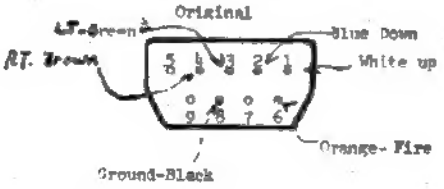


LIST GROUP



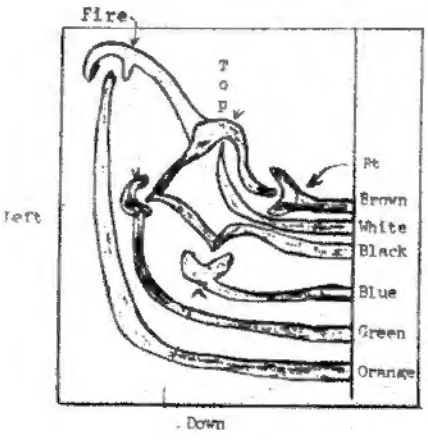


ATARI CONTROLLER



Only 9 has contacts

Original Circuit Pattern



Uses Quik
Connect Terminals
For Edge Connectors

These joysticks will work on, 2068, ZX81 & TS 1000. "K" models work on Spectrum as well and "Z" models should work with Spectrum, but this has not been tried. Note too, that while the "Z" model was downrated somewhat for poor decoding (only 3 lines used), the "K" board only uses 45, even less effective decoding.

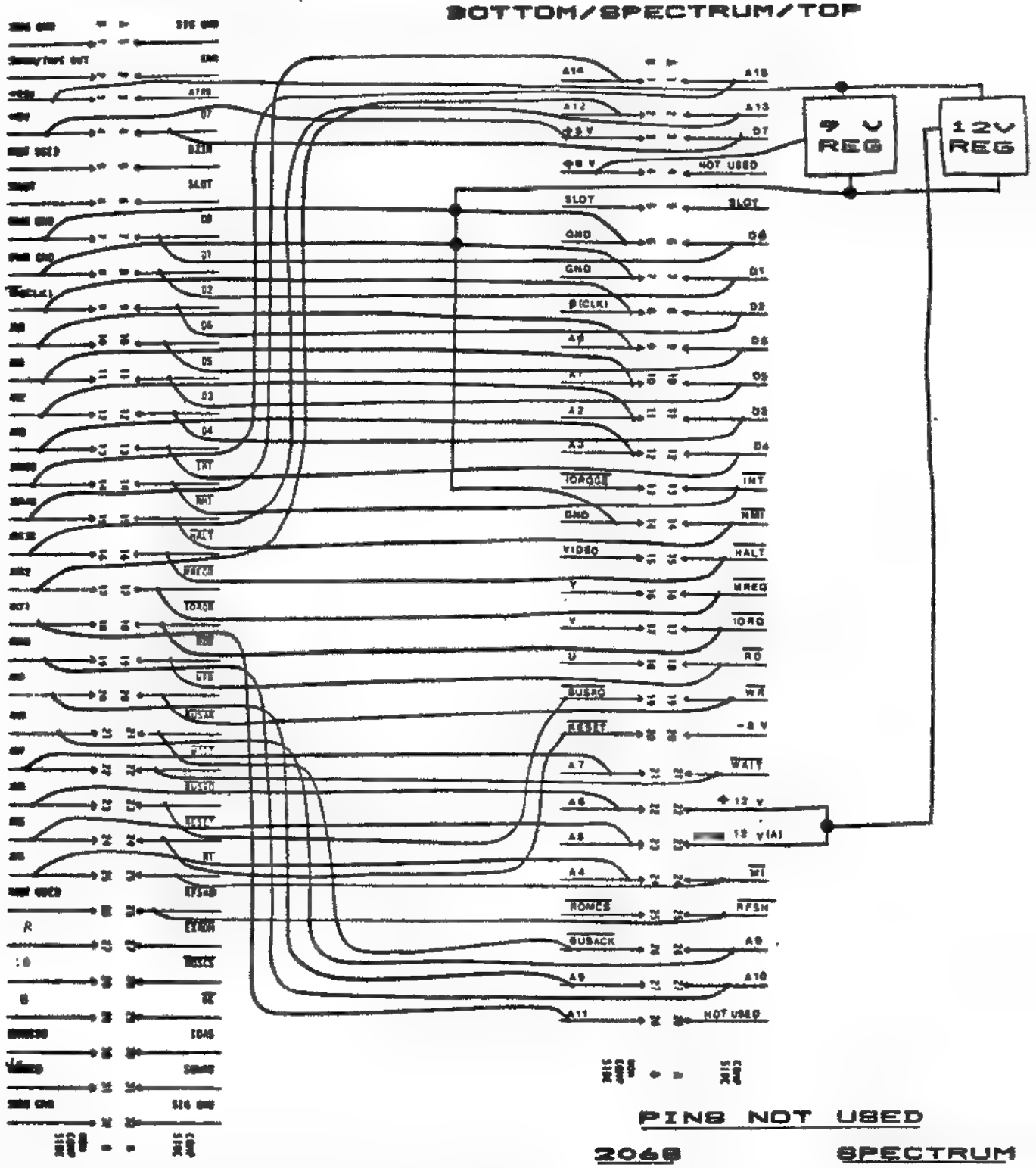
Here are some scratch notes on the 'K' and 'Z' joysticks. Both will respond to IN 31(d), but with quite different results. As you can see, the 'K' joystick interface pulls the data lines up, while the 'Z' pulls them down, when the switches in the joystick are closed (made).

It shouldn't be hard to made a "K" out of your 'Z.' Remove the diodes (and replace with pull down resistors, 10K perhaps) and put an inverter on the output of the QUAD (Pin 3). D4 still seems to be FIRE, but the other lines need either be rerouted, or you could rewire the joystick by repositioning the Quick connect terminals inside it.

TS 2068 / SPECTRUM MICRODRIVE INTERFACE
EDGE CONNECTOR SIGNAL ALLOCATION

BOTTOM/TS 2068/TOP

BOTTOM/SPECTRUM/TOP



PINS NOT USED

2068		SPECTRUM	
1	A&B	4	A
2	A&B	13	B
23	A	15	B
25	A&B	16	B
24	B	17	B
27	A&B	18	B
28	A&B	20	A
29	A&B	25	B
30	A&B	28	A
31	A&B		
32	A&B		

NOTES:
1. This modification will only work with EMU-1, EMU-2, or the new OMNI-EMU (with EMULATOR EPROM) installed in dock cartridge port. ROMs and ROM-based systems need additional circuitry on the interface and inside the 2068.
2. This interface circuit is compliments of Roy B. Perschy, 110 The Village # 503, Redondo Beach, CA 90277 (213)376-2740
3. It might be wise to use some bypass capacitors around the 9 volt and 12 volt regulators.
4. Contact either Roy or Doug Dewey about the availability of this interface--both are working on one, as is Zebra Systems.

LIST GROUP

[illegible]

We've all heard that RGB monitors provide a much better display than that which our 2068's put out on Channel 3 or monitor output. Having just purchased Sears RGB monitor/reciever , I can testify that the difference is breathtaking.

I used Timex's sync stripper circuit, mounted on a Radio Shack project board, to make sure the sync levels to the Sears Monitor were up to snuff. Bob G. feels I could have tried to send the composite video directly to the composite sync input and gotten good results. Theoretically, that won't work because the sync circuits on the monitor are "supposed to be" looking for 5 volt (TTL) level signals and composite video is usually only in the 1 volt range (a 0 signal to TTL). It works on Bob's Hantarex monitor, because the circuits sensitivety can detect the "black" sync signals. The Sears may be sensitive enough, as well, and you may want to try it. I had already built the board into my cable, so I used it.

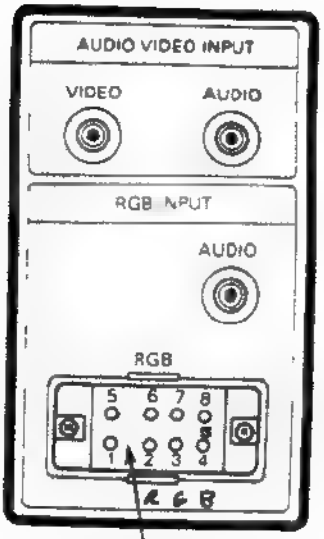
You can make the cable yourself, as I did, or buy a commercial "IBM PC" cable. These latter sell for from $10 to $20, depending on source. Follow Bob's instructions for Internal RGB output using a 9 pin 'D' connector on the back of your 2068 (see back issue of LISTing). Your best bet is to follow IBM's "standard" pinout on the computer connection as this will allow the use of the standard cable. It cost me more to "roll my own" than I could have paid for a commercial cable (Delivery was the main problem), and mine is not IBM compatible as I didn't know their pinout for the 9 pin plug.

The accompanying illustrations on this page give the pinouts for the monitor, the Timex sync circuit and other helpful info.

Phil McConeghey wrote in to tell us how he hooked his monitor up using Brown's RGB adapter. His note is provided below.

The young arcade aces around here used to think Jet Set Willy was one of the best arcade adventure games around. Now that they've seen it in RGB (the brightness artifacts are gone, as well as all the 'wigglies"), they would play it all day - every day, if we let them. About the only disappointment is the "phony" 64 column mode programs. Those 3 dot wide characters look worse, now that I can really see how they're done.

I highly recommend the Sears monitor receivers, especially at the $319.00 price.



RGB INPUT SIGNAL CONFIGURATION

PIN CONNECTION TABLE	
PIN 1	Intensity Input
PIN 2	Red Input
PIN 3	Green Input
PIN 4	Blue Input
PIN 5	Ground
PIN 6	Ground
PIN 7	Vert/Horiz Composite or Horiz Sync Input
PIN 8	Vert Sync Input

[illegible] FOR THE 2068

BY PHIL MCCONEGHEY

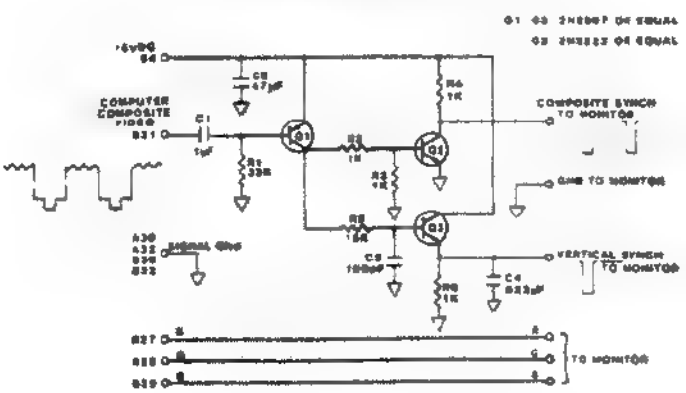
I purchased [illegible] from Sears, Roebuck & Co. ($344.95 including tax) together with RGB Cable Model 6839 ($19.99). After modifying my computer using an RGB Conversion kit #1230-453 from D. Arthur Brown Co., 1702 Oak Knoll Drive, Alexandria, MN 56308 ($19.95). This requires opening the computer and doing some soldering inside. Then I connected the wiring as follows:

COMPOSITE OUT CABLE	RGB SEARS CABLE
Brown	Orange
Red	Red
Orange	Brown
Green & Yellow	Dark blue
White	Green
Black	Blue
+ 5 volts*	Yellow

*Run a separate wire (not included) connected to the +5 volts location shown in the instructions for the RGB Conversion Kit.

Try out the new system by entering SCREEN 0. If the edges of the display have the wiggles or the screen goes blank, open the computer and adjust the horizontal by turning the "HOR" trimmed in the bottom left side and/or the "CS" which is at the middle upper right part of the board.

I now have fantastic clearness and color. I noticed Sears has this monitor on sale recently for $319.95.

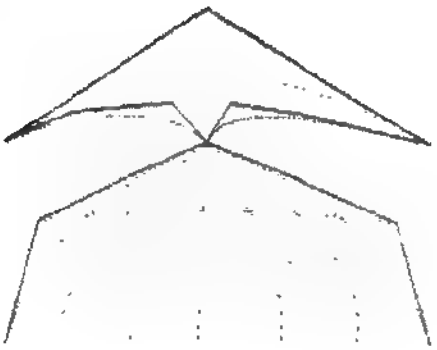


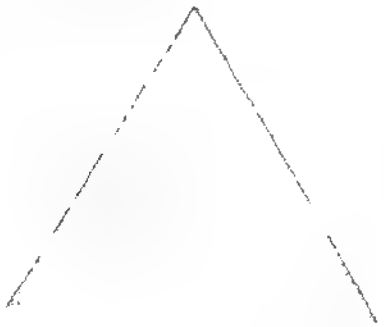
SCHEMATIC FOR RGB MONITOR CONNECTION

graphics

THROWING A CURVE

P. BINGHAM





"CURVE" AND "curve" ARE BOTH THE SAME BUT THE FORMER IS A MORE ENHANCED VERSION WITH 3 MENUS & SOME M.C INCLUDED. WHAT THEY BOTH DO IS TAKE A BUNCH OF STRAIGHT LINES (I CALL THIS THE FRAME) AND PUT IT THROUGH BEZIER'S CURVE FORMULA TO WORK OUT THE EDGES.

THIS WAS ORIGINALLY A PROGRAM FOR THE APPLE II COMPUTER. BUT I'VE TRANSLATED IT TO ZX80, ALTERED ITS FUNCTIONS, WRITTEN NEW ROUTINES, AND SPEEDED IT UP SO NOW IT HAS LITTLE IN COMMON WITH ITS ANCESTRY. IT IS A GREAT PROGRAM TO PLAY AROUND WITH. YOU CAN SPEND HOURS & HOURS GOOFING AROUND WITH IT.

"curve" IS SHORTER AND WILL GIVE YOU A FEEL FOR CURVE PLOTTING WITHOUT LOTS OF TYPING. BUT "CURVE" LETS YOU STORE, ALTER • SUPERIMPOSE AND IS HANDIER FOR FOOLING AROUND WITH THE ARTISTIC TALENT LATENT IN US ALL

I'LL PROVIDE A BREAK-DOWN OF THE MENU FUNCTIONS AND A FEW HINTS & TIPS. THEN THE PROGRAM WILL SPEAK FOR ITSELF

FOR LOADING "CURVE" PROGRAM

OPENING MENU:

- cls — CLEARS SCREEN
- copy — COPIES PICTURE TO PRINTER. (16K ONLY)
- continue — GOES ON TO MAIN MENU (ANY)

MAIN MENU:

- begin — STARTS INPUT SEQUENCE TO START NEW DRAWING (ANY K)
- alter — SENDS YOU TO ALTERATION MENU (16K ONLY)
- store — M.C SENDS SCREEN TO HIGH MEMORY STORAGE (16K ONLY)
- quit — STOPS PROGRAM AT LINE 400

ALTERATION MENU:

- list — LISTS BY CORNER ALL (X,Y) COORDINATES OF LAST DRAWING
- fix — LETS YOU ALTER ANY OF ALL COORDINATES OF LAST DRAWING
- old — DISPLAYS WHAT IS IN HIGH MEMORY STORAGE WITH M.C.
- both — AS WITH OLD BUT THEN SUPERIMPOSES LATEST DRAWING
- MM — TAKES YOU BACK TO MAIN MENU (16K ONLY)

HINTS & TIPS: (MAINLY FOR 16K VERSION)

1. THE VALUE OF "s" IN LINE 10 CAN BE CHANGED HIGHER FOR MORE POINTS PER INCH ON GRAPH CURVE OF LOWER FOR LESS PER INCH. THE HIGHER, THE SLOWER THE PLOTTING. THIS GOES FOR BOTH VERSIONS.
2. FEEL FREE TO CHANGE ANY WORDS IN LINES 40, 240, 300, 900 AS YOU LIKE, AS WELL AS BORDER & PAPER.
3. IF YOU QUIT ACCIDENTALLY JUST USE GOTO 40 AND NOTHING IS LOST.
4. IN CHAPTER "curve" PROGRAM A GOTO 100 WILL LET YOU PLOT AGAIN AND AGAIN WITHOUT LOSING YOUR SCREEN
5. YOU MAY CONNECT THE BEGINNING & END POINTS IF YOU MAKE THEM THE SAME COORDINATES. A BLANK SHEET OF PAPER COULD HELP HERE.
6. YOU ARE ABLE TO TIME LINES CODES AS WELL BUT BEAR THAT BAD CODES CAN GIVE UNUSUAL SCREEN RESULTS.
7. LINES 510 TO 640 IN BOTH VERSIONS CONTAIN THE BASIC FORMULA. A PERSON MORE VERSED IN MATH MIGHT BE ABLE TO RE-WRITE THIS FOR SPEED
8. THE COMMENTS OF THE 1 REM START OUT AS 25 "x"s. THEN (AS SHOWN BY ADDRESS) EACH VALUE IS POKED IN THEIR PLACE. THERE ARE 24 VALUES AND 25 "x"s — WHY? I ALWAYS AM MAKING MISTAKES; THIS IS JUST A PRECAUTION IN CASE I MISS!
9. CAN ANYONE ADD A SCREEN SAVE FUNCTION? RIGHT NOW SPEAKS DRAWS AT 57/67 AND IS 6½ BYTES LONG. RAMTOP IS SET JUST BELOW THIS BY LINE 10.

I HOPE EVERYONE OF YOU HAS AS MUCH FUN WITH THIS AS I HAVE.

— Paul (Bingham)

CURVE program:

```
   1 REM ? COPY  BORDER 17? GO S
UB VAL <)? COPY  8!? BORDER 60 S
UB VAL <)X
  10 LET s=50: DIM x(20): DIM y(
20): DIM b(20): DIM c(100): DIM
d(100): POKE 23730,30: POKE 2373
1,231: GO TO 40
  20 INPUT "1)cls 2)copy 3)conti
nue ";t: IF t=1 THEN CLS
  30 IF t=2 THEN COPY
  40 INK 0: INPUT "1)begin 2)alt
er 3)store 4)quit";f
  50 GO TO (f*100)
 100 INPUT "total number of corn
ers ";g
 110 IF g>20 THEN INPUT "MUST be
<=20,..try again:";g: GO TO 110
 120 LET n=g-1: INPUT "first coo
rdinates: x=";x," y=";y: GO SUB
750
 130 FOR i=1 TO n+1
 140 LET x(i)=x: LET y(i)=y
 150 PLOT x,y: IF i=n+1 THEN GO
TO 180
 160 INPUT "next coordinates  x=
";x," y=";y
 170 GO SUB 750
 180 NEXT i
 190 GO SUB 510: GO TO 20
 200 INPUT "1)list 2)fix 3)old 4
)both 5)MM" h
 210 IF h<5 THEN GO TO 20
 220 GO TO (200+h*30)
 230 CLS: PRINT "corner
";y
 240 FOR i=1 TO n+1: PRINT
;i;" ";TAB 10;x(i);TAB 17;y(i)
 250 NEXT i: GO TO 200
 260 INPUT "alter corner __? (0
if done)";i
 270 IF i=0 THEN GO SUB 500: GO
TO 200
 280 INPUT "new coordinates: x="
;x(i);" y=";y(i): GO TO 260
 290 INK 7: PLOT 175,USR 26727
INK 0: GO TO 200
 300 INK 7: PLOT 175,USR 26715
INK 0: GO TO 200
 320 INK 7: PLOT 175,USR 26727
INK 0: GO SUB 550: GO TO 20
 400 STOP
 500 CLS
 510 LET c(1)=x(1): LET d(1)=y(1
)
 530 FOR e=2 TO s-1
 540 LET j=((e-1))/(s-1): LET b(
1)=(1-j)^n
 550 FOR i=1 TO n
 560 LET b(i+1)=(g-i)/i*j/(1-j)*
b(i)
 570 NEXT i
 580 LET c(e)=0: LET d(e)=0
 590 FOR i=1 TO n+1
 600 LET c(e)=c(e)+b(i)*x(i)
 610 LET d(e)=d(e)+b(i)*y(i)
 620 NEXT i
 630 NEXT e
 640 LET c(s)=x: LET d(s)=y
 650 INPUT "C)curve only F)frame
& curve ";z$
 660 IF z$="C" THEN GO TO 710
 670 FOR i=1 TO n
 680 PLOT x(i),y(i)
 690 DRAW x(i+1)-x(i),y(i+1)-y(i
)
 700 NEXT i
 710 FOR e=2 TO s-1
 720 PLOT c(e),d(e)
 730 NEXT e
 740 RETURN
 750 IF x(=255 AND x)=0 AND y(=1
75 AND y)=0 THEN RETURN
 760 INPUT "HEY!...x(256,y(175
x=";x;" y=";y: GO TO 750
```

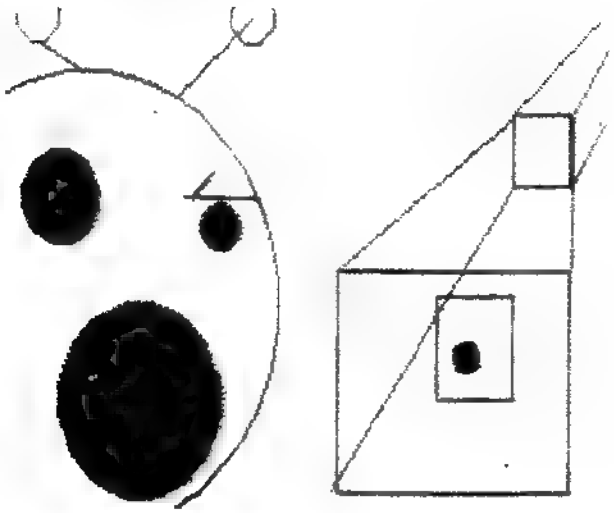
```
     curve
     curve program
   1 REM
  10 LET s=60: DIM x(20): DIM y(
20): DIM b(20): DIM c(120): DIM
d(120)
 100 INPUT "total number of corn
ers ";g
 110 LET n=g-1
 120 INPUT "first coordinates  x
=";x," y=";y
 130 FOR i=1 TO n+1
 140 LET x(i)=x: LET y(i)=y
 150 PLOT x,y: IF i=n+1 THEN GO
TO 180
 160 INPUT "next coordinates  x=
";x," y=";y
 170 GO SUB 510
 180 STOP
 510 LET c(1)=x(1): LET d(1)=y(1
)
 530 FOR e=2 TO s-1
 540 LET j=((e-1))/(s-1): LET b(
1)=(1-j)^n
 550 FOR i=1 TO n
 560 LET b(i+1)=(g-i)/i*j/(1-j)*
b(i)
 570 NEXT i
 580 LET c(e)=0: LET d(e)=0
 590 FOR i=1 TO n+1
 600 LET c(e)=c(e)+b(i)*x(i)
 610 LET d(e)=d(e)+b(i)*y(i)
 620 NEXT i
 630 NEXT e
 640 LET c(s)=x: LET d(s)=y
 650 INPUT "C)curve only F)frame
& curve ";z$
 660 IF z$="C" THEN GO TO 710
 670 FOR i=1 TO n
 680 PLOT x(i),y(i)
 690 DRAW x(i+1)-x(i),y(i+1)-y(i
)
 700 NEXT i
 710 FOR e=2 TO s-1
 720 PLOT c(e),d(e)
 730 NEXT e
 740 RETURN
```

```
1 REM contents
   1 REM xxxxxxxxxxxxxxxxxxxxxx
xx

 26716    1
 26716  255
 26717   33
 26718   17
 26719   11
 26720  231
 26721   33
 26722    0
 26723   64
 26724  237
 26725  176
 26726  201
 26727    1
 26728  255
 26729   33
 26730   17
 26731    0
 26732   64
 26733   33
 26734   11
 26735  231
 26736  217
 26737  176
 26738  201
```

LIST GROUP

graphics

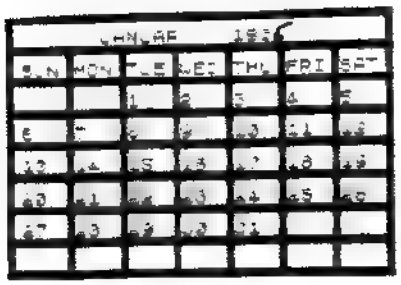


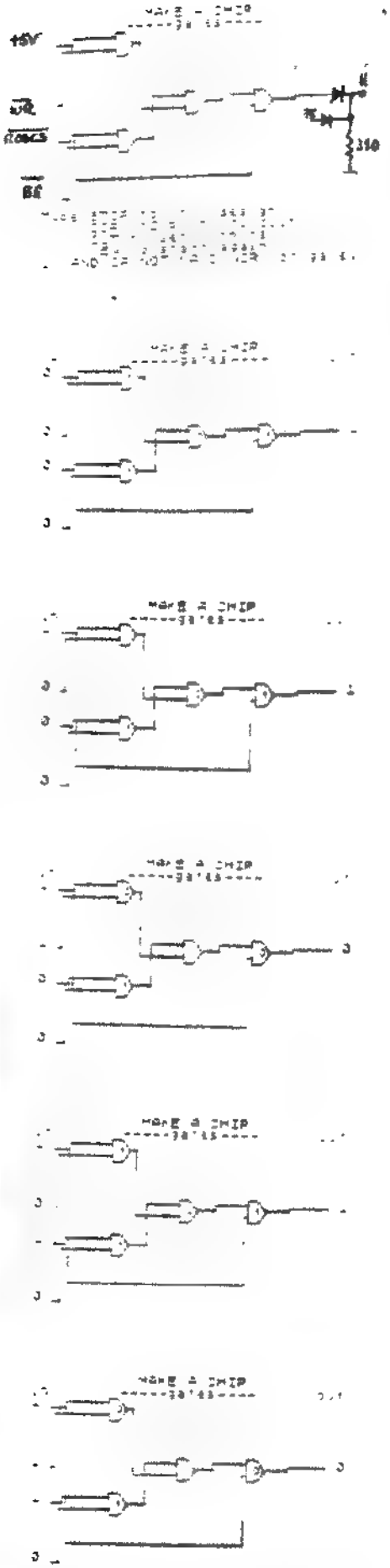
These graphics were produced using "Draw", which is on Library tape #2.

Shade Copy

I J Abbott,
Doncaster,
South Yorkshire.

SPECTRUM





MAKE-A-CHIP - Is an excellent educational package which lets you design and test logic circuits. You may recognise the circuit from your TS 2068 schematic. (FOR SPECTRUM)

1ST GROUP

14

COMMUNICATIONS

FROM ZX/TS FORUM (THROUGH MARTY J.)

Yes you can open/close your friends buffer and even ring his bell!
All you got to do is
1:PRESS SYMBL SHIFT and CAPS SHIFT togetter
2:HOLD THE TWO SHIFTS DOWN and press:

R:to open his buffer
T:to close his buffer
G:to ring his bell

One more thing,when your computer asks you for "PROMPT STRING?"or "CHARACTER DELAY?"
Just hit the ENTER key.This is simpler way to send a program.

Tasword II

This is Tasword II, in the 64 column mode. I think it looks pretty good on my Sears 80 monitor. So far, I can type in these comments about as fast as I like, while using the standard "Sinclair" editing procedures, as I go along. That's a good feature, I think, for those of us who've grown up on these techniques.

I haven't looked up at the results yet, as I want to see if we get "free" word-wrap. When I do, I'll probably fix my mistakes, anyway. I think, for example, that I put in commas for apostrophe'S(I did, and I'm using the insert function(the ARD key) to tell you about it now) in the first paragraph. I'm going back now to try to fix this up. Let's see if I can do it without the manual.

New para. Well, I'm impressed. Not only did I get word-wrap, my text is justified. I'm beginning to see why this package is the rave in the U.K., and why Sinclair Research provided it as part of my microdrive package.

Next para. Time to try the EDIT mode. The HELP menu, reached by entering EDIT, as shown in the Command Line at the bottom of the page, has given me all the commands I needed to fix up the mistakes I made in the first paragraph, and, to insert the double parenthetical expression in the second, which tells you that I succeeded.

I'm TABing manually, but let's see if there's an auto TAB function... Well, you can't have everything. Of course, with auto repeat on the space bar, that's not really a big problem.

There are some other nice word processor features which TWII lacks, but they are fairly sophisticated, infrequently used, and found only on the most expensive WP's. Tasword II will satisfy my needs, and those of most users and moderate intensity writers, like myself, at a very reasonable price(the Spectrum version is available for as little as $12.00 if you know where to look). TWII gets a "1E", perhaps the first I've ever given, both because it is cost effective and is simple enough to use without a manual, for almost anyone who's used even the simplest word processor before.

basicode-2

elektor october 1984

Changes and additions to broadcasting schedules

In our October, 1983, issue we published two articles on 'basicode-2' (pp. 10-27 and 10-81). In the first of these we mentioned that basicode programmes are broadcast during the Hobbyscoop programme. As from 7 October the broadcast times on medium waves change to 19.10 — 19.15 (British time) on Hilversum 5, 1008 kHz, every Friday. The main programme, which is no longer transmitted on medium waves, can now be heard on Thursdays, commencing 25 October 1984, according to the following schedule (all times in GMT).

Australia/New Zealand	07.50	9770 kHz 9715 kHz	Western Europe (cont'd)		15 560 kHz
	10.50	9650 kHz		13.50	5955 kHz 6020 kHz
South East Asia	14.50	11 735 kHz [illegible] 21 480 kHz			9895 kHz 11 935 kHz 17 805 kHz
Africa & Southern Europe	18.50 20.50	9540 kHz 9540 kHz 11 730 kHz 11 740 kHz [illegible] 17 905 kHz		18.50	6020 kHz 9540 kHz
			Eastern North America	02.50	6165 kHz 9590 kHz 9695 kHz
Western Europe	09.50	5955 kHz [illegible] [illegible] 11 930 kHz	Western North America	05.50	6165 kHz 9715 kHz 9895 kHz

RS232 connections

Interface 1

The RS232 socket is wired as follows:

1. No connection
2. TX data (input)
3. RX data (output)
4. DTR (input) this should be high when ready
5. CTS (output) this should be high when ready
6. n.c.
7. Ground (pull down)
8. n.c.
9. +9v (pull up)

An RS232 cable is available from Sinclair Research, which connects the 9 way D-socket to a 25 way D-plug (25 way D-sockets are common on RS232 peripherals). For details of how to obtain this cable, see the software and peripherals catalogue included with the ZX Interface 1. This cable is [illegible]

2. TX data
3. RX data
5. CTS
6. +9v (normally DSR)
7. Ground
20. DTR

LETTERS TO LIST

Chicago, Illinois 60606

2 December 1984

Dear Mr Donnelly

The 10 December 1984 issue of Infoworld magazine, p.22 states that an America Times 2068 computer can be connected to run British Sinclair Spectrum software, presumably using an American television as a monitor. Can you please send me as further information about this and about the Long Island Sinclair Times Group.

I recently moved to Chicago from London and did not bring a Sinclair Spectrum with me because it would not work with an American television, and did not buy a Timex 2068 because it would not run British software. I will appreciate any information you can send me.

Yours sincerely

Donald Kay

(Donald Kay)

11/28/84

Dear Paul -

I am a T/S 2068 who had all but given up hope for any support. I bought the 2068 just in time to see SYNC magazine go down the tubes (after subscribing, but fortunately not yet billed) and Timex shut down the 800- info line. I was lucky enough to get a 2040 printer and the Technical Manual, but the only piece of software I found was a little spread-sheet called VU-CALC. It was refreshing to read of your existence in Infoworld (12/10/84 p 22), which has renewed my fantasies about software & peripherals.

Please send me membership materials and other relevant information. I am...

George Law, Jr

Glassboro NJ 08028

P S - Are modems still available? Does your group have an electronic bulletin board? Looking forward to hearing from you.

November 30, 1984

Dear LISTG

Suggestion for alternate character set: ENGFON - written about in August 81 and 82 Science Digest.

Please send sample of newsletter and list of public domain software for 2068, if possible.

Was it an isolated case or was it by design that no cover letter was included with the QL brochure recently sent by Sinclair Research? Photos were lighter and progress were referred to in their generic sense. Qlub dues rose from $30 to $50 from the previous brochure. What was missing was a cover letter. One that might have said, "QL in stock, call 1-800 .." or one that read, "$100 trade-in on your 2068 when you buy a QL." Perhaps, "QL price reduction, now only $350, call." Or even, "From Qlub and 68000 newsletter if QL purchased before." Unfortunately, no cover letter was found. Was it an oversight? Was it planned? Are current owners of Sinclair products valued by Sinclair? Makes one wonder. All the more so since Qango can be bought for $660 with a disk drive. Disks now run $1.29 from Quill in quantity 25. At this rate, the QL may remain a European phenomenon.

Sincerely yours,

[redacted]

Dear Sirs

Mine is a story which you've heard countless times before so I'll make it brief. I joined the Sinclair computing phenomenon back in the days when you could only buy a ZX81 (then the most impressively supported machine with my "2" to add 64K, a reworked keyboard, a TS2040 printer and some software when I had time to use for the past year I have also been the happy owner of a TS2068 Color Computer.

I used to have a subscription to SYNC.

Even though Timex has tried to boost its declining T/S product line (I refuse to buy any more of their gutless wonders) I am still impressed with my computers and would like to continue to use and enhance both of my systems, hardware and software alike. I'd like to see the T/S computers become the most popular "obsolete" computers since the TI/99 4A.

As a DP professional I intend to develop and market software for the 1000 and 2000 machines. I would appreciate any information or advice you might give me to help me in my endeavor.

As a T/S user, I would also like to join a Users Group to help me keep in touch with developments. Please consider me as a likely candidate for membership. Enclosed is a SASE whereby you may send me membership info.

I hope to hear from you soon!

Mr Paul Donnelly
Secretary Treasurer
Long Island Sinclair-Timex Group
P O Box 438
Center Port NY 11721

Dear Mr Donnelly

Please send me more information on how to place the Sinclair Spectrum Read Only Memory in the Timex 2068. Also would you please indicate whether there is an interface by which I can connect my 2068 to my Zenith Z 89/90 or my Morsh Star Horizon.

Please find enclosed a self-addressed stamped envelope for your reply.

Yours very truly,

Malcolm B Zuckerman

Newport NH 03966

MY ADDRESS

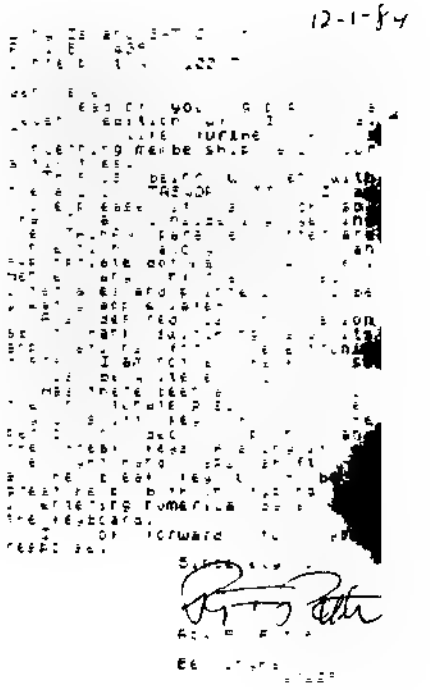
DEAR MR DONNELLY:

I JUST READ ABOUT YOUR SINCLAIR GROUP IN INFO WEEK AND I WAS WILDLY EXCITED ABOUT THE POSSIBILITY OF CONVERTING MY MACHINE TO RUN BRITISH SOFTWARE. COULD YOU PLEASE TELL ME MORE ABOUT THIS. ALSO I WOULD LIKE MORE INFORMATION ABOUT NEWSLETTERS, MEETINGS, PUBLIC DOMAIN PROGRAMS AND MEMBERSHIP.

THANK YOU,

HAL ZUCKER

12-1-84



LIST GROUP

LETTERS TO LIST

Long Island Sinclair Timex Group

DANBURY CT 06810
December 6, 1984

Dear Paul,

I learned of your group from a recent write up in [illegible] magazine and was intrigued by the reference to placing the Spectrum Rom in the TS 2068. Would you please send me more information about this, and your group.

As an owner of both a 2068 and several Spectrum programs on tape I have had limited success in getting the latter to run since many cannot be [illegible] to allow changes to memory addresses etc. I have no problem with printed material from books and magazines - just the tapes.

For what it's worth Manic Miner and Jet Set Willy run well on the 2068, and give hours of fun. Good English programs are not confined to games however (and thank God!) and it would be terrific to be able to use them.

Thank you
(PETER JENNINGS)

12-1-84

Mr Paul Donnelly,
Sinclair Group

Dear Sir,
Read about your group in InfoWorld just as I was about to drop my 2068 in the trash. Please send membership details, you are my last hope.

Also info on Spectrum conversion, as I have just moved here, I'm a [illegible] of Canada, at a $800 [illegible]

Thank you,
[illegible]
Kalamazoo, Mich 49008

Paul Donnelly
L.I. Sinclair Timex Group
P.O. Box 438
Centerport, NY 11721

Dear Mr Donnelly
About the note in InfoWorld.
I'm most interested in the Spectrum Rom - as well as your newsletter - the 2068 is a good machine - and it's groups like yours that will extend its life.
Please send me any information - about the club - the Rom - the newsletter -
Thanks very much,
[illegible]

[illegible]

Please send sample newsletter per your ad in [illegible] Computer Classifieds. Also, could you please tell me what printer would work with the TS 2068?

Thank you,
J J Kennedy

MICRO-DESIGN

TO PAUL DONNELLY
L.I.S.T.

11-29-84

ENCLOSED FIND CHECK AMT. $12 FOR 1 YR SUBSC TO YOUR L.I.S.T. NEWSLETTER AND GROUP. HAVE READ YOUR ARTICLES IN SEVERAL PUBLICATIONS AND HAVE FOUND ALL INTERESTING. ZX80/81 ARE MY ONLY COMPUTERS AND I HAVE STILL MUCH TO LEARN! KEEP UP THE FLOW OF GOOD ARTICLES!

YOUR LABEL → W KOMLOSY
SUSQUEHANNA, PA 18847

YOURS -
W Komlosy

2/6/81

Dear L.I. T/S Users Group,
I am writing to you for any info [illegible] available on your group. I own Two TS 1000's and [illegible] would appreciate hearing from any other owners with ideas of interesting applications. [illegible] Then I currently have, if you are interested, plans for a Voice Recognition System for the T/S 1000 and a Speech Digitization & Synthesis system.
Enclosed is SASE.
Thanks.
Raymond Blum
Bklyn, NY 11219

12/1/[illegible]

Dear LIST,
Do you know of anyplace that still sells DK tronics keyboards for the T 1000 and what the current price is.
Also please send me info regarding your user group.

Thank you,
[illegible]

Randallstown, Md. 21133

November 5, 1984

LESTER M. SACHS

Dear Timex Users Groups:

Several of us in the Baltimore area, TS 2068 owners, wish to form a users group. We would like to draw on the experience of other users groups so as not to make the same mistakes. We would also like to maintain contact, trade notes and software.

I am typing this letter using the Tasword Two program and am happy to report that it is quite good, particularly at its selling price.

I am seeking a program that will make use of the 64 cpl mode of the 2068 and will support the AERCO interface. The Timex Technical manual lists subroutines in Appendix C, but I am told that they were never checked out. Can you help? The AERCO Centronics interface works well when the proper pokes are applied.

Yours truly,
[signature]

LETTERS TO LIST

Dear Sirs,

Could you please send me information on the article (exact range, or perhaps a back issue?) mentioned in the following message downloaded off the Zebra Systems BBS.

Any response would be greatly appreciated.

Also what is "List"? A magazine? Is it T/S computer oriented? Could you please send information on that also?

Thank You!

[illegible signature]

STAMFORD, CT 06906

Here are some letters to LIST - We get many more often asking the same question. A Corresponding Secretary could answer these and send our sampler to new inquirers.

Most of the letters you see here have been answered, albeit briefly, with some scribbling on the first page of the sampler package. I don't know that my quick answers will do any good, though.

As examples of what should have been said (all were sent sample packs and a short note)

To Donald Kay	-	You've been sent sample LISTing Pages which describe the emulator and ROM use. Can you get us Software/Hardware through contacts in UK? Do you visit?
To Mike Leidel	-	Glad to hear of your steadfastness - info sent.
To Malcolm Auckerman		RS232 would do the trick. You'll need software though.
To Ray Potter	-	Subscribe - R. Cunningham and R. Gilder have virtually a continuing series on this set up.
To Peter Jennings		You need a ROM or emulator, TS2040 and with Aerco or Byte Back interface; any printer.
To Ed Cocchio	-	Ed, ROM's are even cheaper in U.K. My markup ($10.00 to members), and even I consider it high, is just lower than his.
To Walter K	-	Your back issues are on the way - we'll publish more ZX81 articles too - If someone sends them in.
To Ray Blum	-	Talk to Zebra - can you write an article for us?
Dennis Lienhonts	-	Buy the DK'Tronics keyboard from them £45-should get it to you for $50.00 including shipping. They take Visa.
Lester Sacks	-	Jeff Street's word processor may help you. Also look at the ads in TS Horizons, Syncware News
Roy Potter (again)	-	You can use Aerco's interface as well. A hand wired big keyboard would work. Your letter was practically ruined by heat during its stay with USPS.

Nov. 5, 84

Dear Chet,

I have been a subscriber to Computer Trader Magazine for quite some time and I want to tell you just how much we Timex/Sinclair computer buffs appreciate this fine publication.

Since Timex pulled the plug out from under us, so did most publications that were dedicated to support the Timex computers. Computer Trader Magazine came to our rescue, providing a wide range of interesting articles. Thanks Chet.

The Long Island Sinclair Timex (L.I.S.T.) Group of approximately 50 members is also dedicated to help those Timex Sinclair computer users who have found themselves up the creek without a paddle. We hold a monthly meeting, provide a monthly newsletter containing timely information, program listings, software reviews and hardware articles. Many of our members are not from New York, so that they are not left out, we mail library program cassettes to them to copy and they in turn add a program to this cassette and mail on to the next member.

We would appreciate your running the following classified ad for us in the next issue of CTM.

Very truly yours,
Robert Gilder

Dear Bob:

Your clubs ad is in the classified section. If you or any other club, regardless what computer, want to exchange subscriptions, I will be glad to if I can use any of the articles in CTM if I think our readers will enjoy them.

I hope all of your 50 members are subscribers. If they aren't, they should be!

Chet

25 December 1984

West Covina CA 91790

Dear [illegible]

This is a test. The first test printed on the Brother EP 44 by using the TASMAN EN 2136 interface and the Tasword II program which is a word processor. This is with TS 2068 Timex Color Computer.

The quick brown fox slyly jumped over the lazy dog. THE QUICK BROWN FOX SLYLY JUMPED OVER THE LAZY DOG

Now for the acid test [illegible]

This was printed with right justify [illegible]

The screen copy is not all that good on my [illegible] monitor, but I suppose it would be better if I [illegible]

Well now that I have expanded the [illegible] much easier to see on the screen and a pleasure to read [illegible]

Now how about looking at the entire character set as found on the 2068 keyboard

1234567890 [illegible] interesting to see what the copyright symbol turns out to be. It was the last character after the curly brackets. Well in the printout everything is the same except that the English pound sign is reproduced as the # [illegible] the copyright [illegible]

Very truly yours

[signature]

BOB HOWARD, [illegible]

18

CATALOGS RECEIVED

VENDOR	PRODUCT
Budget Robotics & Computing Box 18616 Tucson, Az 85731	Bruce Taylor has the Computer Continuum Line, and will soon (mid '85) market a Complete robot system, as described in his forthcoming TAB book; "Build a Micro-computer Controlled Robot"
Sum-Ware 810 Mammot Road Alden, N.Y. 14004 716-547-2273 (after 6PM)	Stan Light's Ad is printed in this issue
Pleasantrees Programming	Paul Bingham will have a 2068 price list out soon
Toronto Software World PO Box 84 Agincourt, Ontario Canada MIS3B4	A limited number of Spectrum software titles, at "US" (not UK) type prices. Also has Software for's Forty Racer for h res arcade action on ZX81
WMJ Data System 4 Butterfly Drive Hauppange, N.Y. 11788	Now stocks Quicksilva and Software titles Has Romswitch for $54.95. Will soon publish new newletters "Quarters"
Scott Foresman & Co. 1900 East Lake Avenue Glenview, Ill 60025 (312) 729-3000	New book by Jim Stephens Powerful projects with your T/S 256 pages $12.95 ISBN 0-673-18038-7
Poretsky & Poretsky, INc. 521 Argyle 1 Brooklyn, N.Y. 11218 (718-469-5948)	Spec-Tax for 1985 TS 2068 program for 1984 taxes $16.95
William Ware (Michael Williams) 1300 DePaul Way Virginia Beach, Va 23464	Products for TS/1000 PRO-FILE PLUS DATABASE $14.95 Z-Trek $9.95 Intruder Alert (Berzerk?) $14.95
K Soft Co. 845 Weliner Road Naperville, Il 60540 (312) 961-1250	Tax return 1984 - $18.00 + 1.50 1040 & A,B,C,D & E TS1000 or 2068 - Takes Visa/MC
John F. Brosky 5980 Lannoo Detroit, Mi. 48236	Has 16K RAM packs for $18.00 plus postage

NEXT MONTH:
A Listing of the ZX/TS publications still in business both commercial & user-groups.

MEMBERS

Do you subscribe to other TS User Group publications? We're compiling a list of these for the next issue. If you know of one with a good newsletter, please give us some feedback, or send a few sample pages of a copy of our newsletter to them. Do remind them though, that they must receive written permission from us to reprint any of the articles. (So far, most of the newsletters we've seen are doing quite well with their own material. In fact, we have only received one reprint request (From Syncware News), to date). Remember, copies of other groups newsletters are in the "library".

Ralph Smith called last week to tell me that the Spectrum ROM that he ordered from LISTLand Island Sinclair Timex) Users Group (SIG) arrived in 5 working days. He was very "happy with their efficiency". A "Shortwave Listener' Rob Harrington has been in contact with me regarding joining the Group. He lives in Lakewood and just got a Nemotech RS-232 I/F for his 1000 and now waits eagerly for his modem. By the way, he tells me that the I/F is still available from Nemotech at $79.95 with a cable for $19.95 plus $4.95 shipping. Write to: Nemotech Direct Sales Division, 99 Cabot St, Needham, MA 02194. (617) 449-6614.

This little gem is from the Mile High TSUG newsletter (They're in Aurora, Co.). The confusion between LIST C & LIST A is till prevalent, but at least, LISTA is not giving LISTG any black eyes.

MICRODRIVES UPDATE
BY N. PASHTOON

The Dec./Jan. issue of LIST carried an article on the microdrives , and the interface called the Twistor , which is required between the TS2068 and the Sinclair Interface 1. In the haste of meeting the LIST publication deadline , I had left out some of the RST XX for the shadow ROM in the Interface 1 . These RST's follow :

RST 28 : The 16K Home ROM error check is done . ERRNR should be loaded with the required error code before the RST.
RST 30 : If the Interface 1 variables are not established , a RST 30 will create them .
RST 38 : Interrupts on .

An update is also in order for the storage capacity of the cartridges . With two drives connected , I formatted ten blank carts. on the drive for which results were reported in the last issue. The average storage capacity came to 88.8 kB ±1 kB. Formatting the same cartridges on the other drive resulted in an average storage capacity of 98.7 kB , with the highest storage at 102 kB and the lowest at 95 kB. Both drives are new , why there is a difference I have no idea.

****

In the paragraphs to follow, I will detail the redesign of the Twistor , which became necessary in light of tests with other TS2068's. Our editor thought that it may be of interest to hardware hackers to present my experimental observations , hypotheses , possible solutions in chronological order . If details like these bore you , then jump to the final solution at the end of the article. Otherwise follow the reasoning , and if you think you are reaching a different conclusion , then provide us with feedback , so we can sit and have a nice technical powwow . I am hoping to provide you with actual timing wave forms in the next issue of LIST (no promises).

Last month's report on microdrives for the TS2068 equipped with EMU-1 was based on extensive testing on two computers that I have . On these two machines the Twistor worked perfectly and consistently everytime . I typed and xeroxed last month's article , and had a demo. of the drives for the hardware hackers of our group on Dec. 16,1984. The LIST mailing started on the 17th. On the 18th I got a new TS2068 and discovered that most of the time it crashed , and some times half finished microdrive error messages will appear on the screen . I assumed that that the rigid board design of the Twistor was responsible , causing poor connections at the edge connectors . After alot of juggling with board , I finally connected the Twistor by using a 12" long cable and the Oliger's expansion board . The computer started working , with some infrequent errors . The total length of the wires etc. connecting the computer and the Interface 1 came to 24". I assumed that possibly the shadow ROM is jumping the gun and grabbing the bus too early. The capacitance of the cable is causing delays and thus solving the contention problem.In order to simulate the effect of the cable capacitance with dicrete caps., I estimated that the cable cap. can't be more than 50-60 pF .

Later measurements showed the capacitance between the wires to be between 25-30 pF. I didnot want to load the whole bus therefore I connected 91 pF caps to the control lines (only) leading to Interface 1 . This didnot have much effect . Now reasoning that since RST08 is responsible for the turn on of the shadow ROM , i.e. when 0008 appear on the address bus that ROM is turned on , then a delay of A3 will improve things. When the 91 pF cap. was connected to A3 the computer started working consistently .

In order to isolate the problem , still thinking that the shadow ROM was jumping the gun , I put a delay in the A3 line. The delay consisted of one buffer from the CD4050 IC. The CD4050 gives a delay of 60 nS typically , up to 120 nS max. , for 5V supply . This made matters worse . Even the good computers started to work erratically . The conclusion is that the problem is inside the computer.

At the January 6 meeting I asked members to bring in their computers for testing . 7 out of 10 computers worked without the cap. on A3 . Two worked with the cap. in . One computer refused to work. I have been communicating the mods. to another TSUG , but they had absolutely no success . The same group provided me with info. on a group out West , whose micro drives would work some times.In another words,there definitely existed a problem to be looked into.

At the time the weather started to become cold. I noticed that on my bad computer , when it was cold , it would start misbehaving for the initial few minutes, and would work properly after warm up . The data sheets on memories showed that they respond faster at lower temperatures. In the mean time I did experiment with a dozen circuits like introducing one T state WAIT when the shadow ROM would turn on , to decoding circuitry using ROMCS from Int.1 and the processor's RD, A13, A14, A15, MREQ, with the decoder feeding the the BE input of the computer . Some of the circuits even successfully switched the banks . The problem still persisted ;namely, the two good computers will work , and the bad one will either be crashing or giving the wrong messages.

I should mention that the ROMCS from Int. 1 is an output . It goes tri-state when the Spectrum ROM is active , and becomes active high when the shadow ROM is active. This is an important feedback mechanism in the Spectrum where it is connected to the CE of the Spectrum ROM.

A cardinal rule that I follow , when doing hardware work on the TS2068 , is that DO NOT IMPLEMENT ANY INSIDE MODS. on the computer . All mods. must be on the outside. The idea is, of course, to obtain a universal solution to a problem .

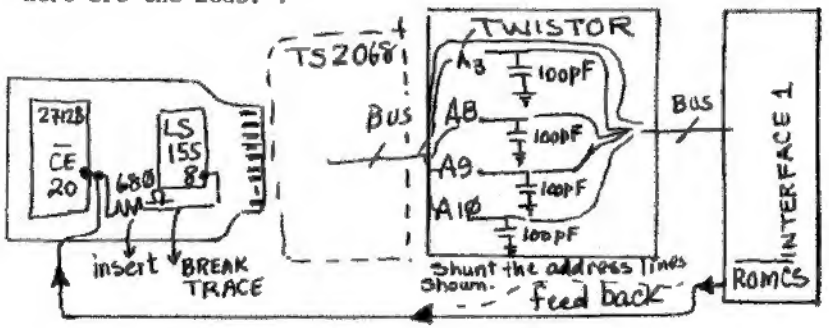
By watching the display of error messages on the bad computer for hours (literally) I found out that in a blink of an eye (probably 1/60-th of a second) the correct error message did appear on the screen , but then gibberish will be displayed . My conclusion was that the shadow ROM was

turning on properly , but that the turn off was a problem . A study of the ROM disassembly , and the literature at hand revealed that when address Ø7ØØH was in the PC, and hence on the address bus, the shadow ROM will turn off . Since Ø7ØØH had the A8,A9,A10 bits set , I argued that a delay of these three bits would help . As such I put 91 pF caps on these three lines . Lo and behold! the problem got solved . I must mention that thus far in my experimentation not alone the printer , but any other peripheral on the Spectrum bus (behind the Int.1) will cause all the computers to be in a crash state . I attributed the problem to the excessive loading of the bus . But with caps on A3, A8, A9, and A10 , now for the first time the printer started working. That night the temperature was cold (in the teens) outside . I took my bad computer , Int.1 , the emulator and put it outside for half an hour , when I turned it on it worked the first time around. I left the system on for 8 hours and it did not malfunction even once. The solution was communicated to the other TSUG the feedback was that it didnot work . It was not making sense ! I went to work to collect some timing data. While doing that , I zapped my EMU-1. Very probably static got it since every few minutes I was installing the EMU-1 in the good computer and then in the bad one . I didnot know at the time , but it was a lucky coincidence . Being desperate to continue experimentation , I successfully was able to use the Spectrum ROM as an emulator , and make it work with the drives(more on this , may be in a future issue of LIST).

I ordered another EMU-1 and tested it with my computers. With all the suggested mods on the Twistor,all of them were continously in a crash state . In other words I was now in the same boat as the other TSUG. Consulting with the manufacturer of EMU-1 there was no code changes in the contents of the EPROM . I programmed EPROMs , again the same result. So vive la difference? A comparison of the zapped EPROM and the EPROM on the new EMU-1 revealed that originally EMU-1's were programmed on 300 nS chips , but the new batches were programmed on 250 nS EPROMs . In other words,a time of 50 nS was making all the difference . So I set out to simulate a low speed EPROM . The following circuit was tested on the EMU-1 board by breaking the traces to the $\overline{CE}$ and $\overline{OE}$, and inserting the CD4050 buffers to create an artificial delay .

The result of the experiment was that all three computers got out of the continous crash state , and would work from time to time . Note that the simulation is not perfect , since we will need to delay all the 16 address lines also.There is not that much space on the EMU-1 board . All this information was relayed to the other TSUG . While I am writing this I got a call from them , that for the first time there computers are working with the Int-1 when they replaced the 250 nS chip with a 300 nS chip in the EMU-1.

Now I had to address the problem of the 250 nS EMU-1's. Note that all the experiments so far were the so called open loop type . In other words when such a nice feedback signal is available from Int.1 like $\overline{ROMCS}$, signalling the computer when it is active , it should be used. The fastest way to provide such feedback to the DOCK bank in TS2068 is a hardwire connection between the EMU-1 and the Int.1. I grant you that the same is achievable by using the $\overline{BE}$ input of the computer , as mentioned earlier , and one would be tempted to call it an elegant solution. But the penalty is the use of one or two very fast chips . Any way,I believe the solution to be universal and should work on all TS2068 computers . All my three computers work perfectly and with the printer load attached . Here are the mods. :



CONCLUSION: A):The reason some of the TS2068 computers will not work with the microdrives , even with a 300 nS EPROM in the EMU-1 is the bus contention between the Int.1, and the EPROM on the EMU-1.
B) A 300 nS EPROM on the EMU-1 if used in conjunction with the caps. on A3,A8,A9,A10 does solve the problem even in an open loop configuration.
C) Closing the feedback loop , as per diagram above, and the caps. does solve the problem even with a faster EPROM in the EMU-1 , and as such is a universal solution.

AFTERTHOUGHTS :The problem of ringing on the address lines can't be ruled out . More measurements are required.
An experiment with a 450 nS EPROM is called for . This will reduce the cost of EMU-1's . I will report on such an experiment in the future.
Some hardware hackers will take anissue with the dirty and fast solution of putting caps. on the suggested address lines. The value of 100 pF is also excessive , and will tell me that it is a no-no in microprocessors system design. My response is show me one microcomputer that do not use it . To witness, open up your TS2040 printer .What are all those caps doing on the address and data lines ? I very well recall desoldering them , because it will not work with another peripheral on ZX-81. The removal of the caps. did make the system work. For that matter , if you open your TS2068 , you will notice caps near the edge connector. NAP Jan.19,1985

A CROSS-CORRELATION OF THE SPECTRUM ROM VERSUS TS2068

Part 2

Beside Logan's book mentioned in Part 1, one needs to have a good disassembler . There are various disassemblers available for the TS2068. In an earlier issue of LIST Paul had reviewed the one written by Dick Scoville of Triangle Users Group. Scoville's diassembler is written in Basic. It is a simple disassembler, but does its job well . For the price ($5.00) one can't beat it . Zebra is also marketting the Crystal Computing disassebmler. This product (the Spectrum version) is officially approved by Sinclair Research, and matches the Zeus Assembler . It is a good , sophisticated disassembler with many functions from block moves to including a breakpoint in your code , and register displays. The last disassembler I like to mention is my favorite since the ZX81 days , namely the HOT Z , written by Ray Kingsley. The HOT Z is both an assembler and disassembler.To give you a full description of its capabilities will require a full long article . Suffice it to say , that it can do almost any thing that other assemblers and disassemblers can do and more. The product was developed specifically for the TS2068. There is both cassette ($24.95) and cartridge ($60.00) versions available. The nice thing about the cartridge version is that it uses only a few hundred bytes of your RAM. The program itself is in the DOCK bank , shadowing the RAM. The most important feature of HOT Z is that it has a very large NAMES file , which will label all important routines in the TS 2068 ROMs.

ROM ATLAS

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SPECTRUM LABEL, NAME	SPECTRUM ROM Addr	TS 2068 ROM Addr	TS 2068 LABEL, NAME	SPECTRUM LABEL, NAME	SPECTRUM ROM Addr	TS 2068 ROM Addr	TS 2068 LABEL, NAME
INDEXER	160C	1368	SEARCH	NEXT-2-NUM	1C79	18DC	DYADIC
		1374	SRCHSC	CLASS-06	1C82	18E5	TEN6
CLOSE	16E5	139F	CLOSE	REPORT-C	1C8A	18ED	SYNERR
	16EB	1348	RSTSTR	CLASS-0A	1C8C	18EF	TEN10
CLOSE-2	1701	13BE	CLCHAN	PERMS	1C96	18F9	OPTHD
OPEN	1736	142A	OPEN	FETCH-NUM	1CDE	1C49	STK-0
OPEN-1	1756	145E	USE-ZERO	STOP	1CE6	1C51	STOP
OPEN-2	1750	1465	OPCHAN		1CEE	1C59	
CAT-ETC.	1793	25C8	CAT	IF	1CF0	1C5B	
AUTO-LIST	1795	14F1	LIST	FOR	1D03	1C78	FOR
LLIST	17F5	1541	K-LLST	LOOK-PROG	1D56	1D29	SKIP
LIST	17F9	1545	K-LIST	NEXT	1DAB	1D55	NEXT
	1660	15AC	LPO	READ	1DEC	1D96	READ
OUT-LINE	1855	1531	PUT-SR?	DATA	1E27	1E82	DATA
OUT-LINE2	187D	15C9	PUT	RESTORE	1E42	1E9D	
NUMBER	1886	1602		RANDOMIZE	1E4F	1E04	RAND
OUT-FLASH	18C1	160D	FLASH&	REST-RUN	1E45	1ECA	RESTBC
OUT-CURS	18E1	1620	PR-CUR	CONTINUE	1E5F	1EE4	CONT
CN-FETCH	190F	1658	NEXT-L	GO TO	1E67	1EF1	JUMP
LN-STORE	191C	1668	DE,HL	OUT	1E7A	1F04	
OUT-SP2	1925	1671		POKE	1E90	1F0A	
LINE-ADDR	196E	1606	FIND-L	TWO-PARAM	1E95	1F0F	
CP-LINES	1990	16E8	CP-BC	FIND-INT1	1E94	1F1E	FIX-DJ
	1988	16F0	SUBLIN	FIND-INT2	1E99	1F23	FIX-M
EACH-STMT	19BB	16F3	SUBLN1	REPORT-B	1F9F	1F29	ERRB
NEXT-ONE	19BB	1720	RECLEN	RUN	1EA1	1F2E	
DIFFER	19DD	1745		CLEAR	1EAC	1F36	CLEAR
RECLAIM-1	19E5	1740	DEL-DE	CLEAR-RUN	1EAF	1F39	CLR-BC
RECLAIM-2	19E8	1750	DELREC	GOSUB	1EED	1F99	GO-SUB
E-LINE-NO	19BF	1768	LINENO	TEST-ROOM	1F05	1FB3	CHK-SZ
OUT-NUM-1	1A1B	1799	PUT-BC	REPORT-4	1F15	1FCF	ERR4
OUT-NUM-2	1A28	1795	PU-LN	RETURN	1F23	1FD4	RETURN
OUT-NUM-3	1A30	1790		PAUSE	1F3A	1FEF	PAUSE
LINE-SCAN	1B17	1A27	SYNTAX	BREAK-KEY	1F54	2009	BREAK
STMT-LOOP	1B2B	1A44	LS4	DEF FN	1F6D	201D	DEF
SEPARATOR	1B6F	1AB2		****	****	2128	SOUND
STMT-RET	1B76	1AB9		UNSTACK-Z	1FC3	214F	
LINE-RUN	1B8A	1AD8	EXCUTE	LPRINT	1FC9	2155	K-LPR
LINE-NEW	1AEC	1B9C		PRINT	1FCD	2159	K-PRN
REM	1B82	1B00		PRINT-2	1FDF	217E	P-SEQ
LINE-END	1B83	1B09		PRINT-CR	1FF5	2194	
LINE-USE	1B8F	1B15		PRINT-ITEM1	1FFC	219B	
NEXT-LINE	1B91	1B27		PR-STRING	203C	2108	
STMT-RET	1B76	1AB9	ENDSTT	PR-END-Z	2045	21E4	
CHECK-END	1Bee	1B44	END?	PR-ST-END	2048	21E7	TERM?
STMT-NEXT	1BF4	1B4A	ENDTEN	PR-POS-1	204E	21E0	
CLASS-01	1C1F	1B5?	TEN1	STR-ALTER	2070	220F	STRITO
REPORT-2	1C2E	1B91	ERR2	INPUT	2089	2228	INPUT
VAL-FET-2	1C59	1B8C	LT22	IN-ITEM-1	20C1	22GB	1-SEQ